





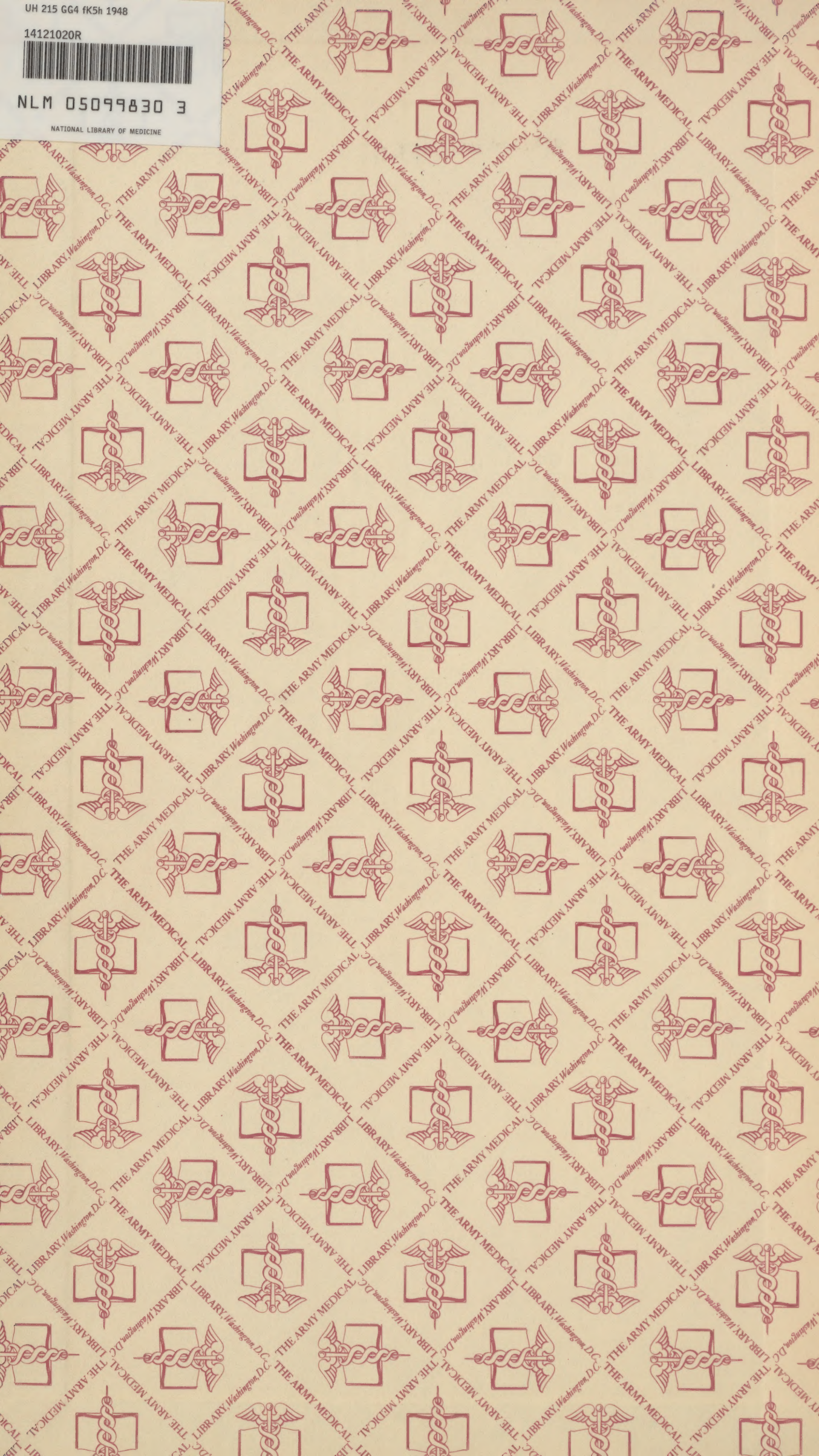
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File: P3-1d  
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12 May 1948

From: Assistant Technical Officer (Medical),  
U.S. Naval Forces, Germany,  
To: Chief, Bureau of Medicine and Surgery,  
(Attn: Chief, Publications Division)  
Via: (1) Technical Officer, U.S. Naval Forces, Germany  
(2) Chief of Naval Operations (Op-32-F2)  
Subject: History of Medical Service of German Armed Forces.  
Forwarding of translation.  
Reference: (a) BUMED:353:FA, dated 3 February 1947.  
Enclosure: (A) Subject translation.

1. As directed in reference a arrangements were made to have a condensed history of the medical service of the German Armed Forces prepared. Prof. Dr. Walther KITTEL, formerly a General in the medical corps of the German Army and since 1910 a career medical officer, was chosen to prepare the manuscript.

2. The folio forwarded under separate cover to each of the recipients of a copy of this letter is a translation of the manuscript prepared by Prof. Kittel. No attempt has been made to influence the preparation of this manuscript other than in a consultive capacity as regards format and brevity. A sincere effort has been made to keep this a historical account rather than for it to be a professional or political sounding board.

3. The annex concerning the medical service aboard submarines describes the outstanding feature of the medical service in the German Navy. Prepared by Dr. J. TONNDORF, a younger reservist, it reflects a different point of view from that of the older career officer. Both the authors express points of view believed to be generally held by members of these two groups.

4. Both these manuscripts were prepared for the U.S. Navy Medical Corps. Reserve copies of this folio will be sent to the Publications Division, Bureau of Medicine and Surgery, Navy Department. Further inquiries concerning this folio should be addressed to that division.

*Harry J. Alvis*  
HARRY J. ALVIS,  
Commander, Medical Corps,  
U. S. Navy.

cc:  
Tech. Off. USNFG,  
CNO (Op-32-F2)  
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T 19 July 1948  
Germany (Military) under Allied Occupation, 1945-1948  
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TECHNICAL SECTION (MED.)  
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FOREWORD TO TRANSLATION.

The following history of the medical service of the German Armed Forces is a translation of the manuscript prepared by Prof. Dr. Walther KITTEL for this section. No attempt was made to influence this work beyond suggesting subjects of interest. The translation has not been rewritten so represents the opinion of the author.

Prof. Kittel entered the service of the German Army in 1910, and continued with uninterrupted service until the end of the war in 1945. He received his medical training at the Military Medical Academy and his speciality training in neurology at the University of Goettingen. He served as a troop physician before and during World War I and in various hospital and administrative commands following his period at Goettingen. For the decade 1929 - 1939 he was in Berlin associated in one way or another with the Medical Inspectorate of the Army. In 1939 he became a Corps Surgeon and continued with service in the Field Armies on both the Western and Eastern Fronts. The experiences reported in Section VII concerning the situation in Silesia and the Sudetenland at the end of the war are interesting personal experiences. Prof. Kittel was the senior medical officer of the last large group of the German Army to capitulate. Professor Kittel was promoted to General rank in 1937. For the record it should be stated that Prof. Kittel was "de-nazified" in the Wiesbaden Courts and classified as "not chargeable", that means that no indictment was drawn against him as being a Nazi.

Section IV concerning the Military Medical Academy is of special interest to the author in as much as he was at one time a student there, and later was associated with its direction. The extensive collections of this institute seem to have vanished without trace. The last heard of its famous medical library was that it was dispersed in the basements in small villages along the upper reaches of the River Spee in Silesia. The extensive statistical material of the central archives was last reported to be in Ohlau in Silesia.

As one reads Section VII the description of the effect on the civilian population of the large scale air-raids holds the attention. The comment on phosphorus burns might cause some wonder. In this connection in other translations of this section (Fourth Report of Special Consultants to the German Armed Forces, May 1944) General Gerhard Rose, reporting as a member of a special investigating group, clearly reports that they found no evidence to support the rumors that phosphorus bombs as such had been used against the German people. Phosphorus as a part of the priming charge and as a screening smoke was commonly used by both sides in the late conflict.

The Annex concerning the medical service aboard submarines by Dr. J. Tonndorf is an interesting commentary on a special problem of military service. As usually conceded, the losses of physicians aboard submarines outweighed their opportunities to provide service requiring such prolonged training.



UNITED STATES GOVERNMENT  
UNITED STATES DEPARTMENT OF COMMERCE  
BUREAU OF ECONOMIC ANALYSIS  
WASHINGTON, D. C. 20540

INTERNATIONAL TRADE

The following is a summary of the data for the year 1948. The data is based on the report of the Bureau of Economic Analysis, United States Department of Commerce, dated 1949. The data is presented in the form of a table, showing the total value of exports and imports for each country, and the percentage of total exports and imports for each country.

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The present format of this history is not considered the best work of this section. The editing and preparation of the translations were done under conditions that did not make the best work possible. It was never intended that this history should deal with details but rather with trends, policies and problems. It is believed that these aspects are discussed in sufficient detail for most practical purposes.

These articles were prepared for the U.S. Navy and publishing rights rest with the Navy Department. Any correspondence concerning this history should be addressed to the Publications Division, Bureau of Medicine and Surgery, Navy Department.

*Harry J. Alvis*

HARRY J. ALVIS,  
Commander, Medical Corps,  
U. S. Navy.

Note: page 16. Compulsory military training was reintroduced in Germany in 1935 and extended to two years in 1937.

*To Major General Hoyle*  
*With kindest regards and*  
*deep appreciation for the many*  
*kindnesses shown me during*  
*my service in the European Theater*  
*Harry J. Alvis*  
*Commander MC USA*







HISTORY

of the

MEDICAL SERVICE

of the

GERMAN ARMED FORCES

by

Prof. Dr. Walther KITTEL

---

A N N E X

MEDICAL SERVICE ABOARD SUBMARINES

by

Dr. J. TONNDORF

---

Translation prepared by:  
U.S. Fleet, U. S. Naval Forces, Germany,  
Technical Section (Medical).







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## I. HISTORY OF THE GERMAN MEDICAL CORPS

The organization and history of the German Medical Corps can be understood and appreciated only by tracing its origin back to its early beginnings.

The very first intimation can be found at the time of the medieval lansquenets of the 15th century. With the establishment of regular armies a more systematic organization became necessary. In Prussia, in particular, this development started under "Dem Grossen Kurfürsten" (The Great Elector) (1640-1688). At that time a distinction was made between the full fledged "Mediker" - one for each higher staff - who had a satisfactory training as an internist and the rudimentary, so called "Feldschere" mostly former barbers, who dived in a small way in medical matters, without any systematic training, who generally had very little knowledge and who, in a rough manner of speaking, might be compared to the N.C.O's of the modern medical corps. In addition there were better trained surgeons, the so called "Wound doctors", who had attended a surgical school, the scope of which might be compared to that of an university. The "Wound doctors" were, however, not very numerous, they insisted on a high salary which the armies of that time were not willing to pay. So we find these better trained physicians only occasionally and then in a higher command. The "Feldschere", therefore, had practically the entire treatment of the soldiers in their hands and their chores were deeply despised by the fully trained physicians. "Feldschere" were to be found in each company. The leaders of the troops hired and dismissed them upon their own discrimination without paying too much attention to their ability.

The very poor experience with these "Feldschere" on whom the soldiers had to depend at least for their first treatment again and again gave rise to many complaints. King Friedrich Wilhelm I founded therefore in 1713 the "Theatrum Anatomicum" in Berlin, as a first training school for the "Feldschere". The teachers for this new institution came from the "Collegium Medicum" and the courses included anatomy and surgery. A test had to be taken at the end of the courses. The same king founded in 1727 the "Charité Hospital" in Berlin and the "Feldschere" received further training there. The training included the treatment of internal diseases. This was the first attempt to unite internal medicine and surgery and to introduce a training scheme covering the whole field of medicine, that is to say 100 years before these same ideas found their acceptance by civilian physicians.





As a matter of fact only a limited number of "Feldschere" could go through this school. The students were given the title of "surgeon" upon successful completion of the courses and the superior positions were reserved for them exclusively.

Friedrich the Great (1740-1786) was continually hampered in his Silesian Wars by the insufficient number of well trained surgeons. He was striving for better medical care by constantly introducing changes in his mobile field hospitals. He also hired a number of French surgeons who had the best reputation at that time. But he soon dismissed all of them because of their incapability. His successor took a decisive step towards the perfection of the medical service in that he sponsored the foundation of the so called "Surgical pépinière", (which means literally a tree nursery) in 1795 as a school for the training of surgeons, as proposed by his Surgeon General GOERCKE. From that time on a thorough training of the "Feldschere" in all fields of medicine was guaranteed. This was a further development in the attempt to unite the organizations of the "Mediker" and "Feldschere". This union was accomplished only in 1852 for the civilian physicians.

The Prussian Monarchs were at all times much concerned about the development of the medical profession and they realized that only a well paid and esteemed position would be attractive to qualified men.

In line with this attitude Friedrich Wilhelm I, ordered the induction of "Feldschere" to be withdrawn from the authority of the troops commanders, who often had proceeded according to their own discrimination, and put it under the authority of military surgeons. From then on the organization of the training, promotions, judgement etc. passed gradually into the hands of a medical organization. Step by step, the military surgeons achieved a higher recognition and pay in the military hierarchy. In 1807 the titles of the higher medical commands were invested with the ranks of regular officers and counted among the major command. After the war of 1870 the final and very much desired step was made of putting the medical officers in every respect on equal footing with the regular officers. They were then given the title of "Sanitätsoffizier". Before World War I the medical officers were given the full authority in the military hospitals, which until then had been exercised conjointly with troop officers and military officials. The mobile units of the medical organization were likewise placed under the command of medical officers.

It was not until after World War I that the last differentiation between medical and troop officers was removed and from then on the medical officers had the same authority over the medical personnel as the troop officers had over the soldiers.





History shows that the advances in the standing of the medical officers generally took place following wars. Many a success was lost afterwards in the struggle for authority in peacetime. As a matter of fact, the achievements of the surgeons are particularly outstanding and important in wartime, when each medical officer is supposed to devote his entire personality to the care of the injured soldier. This aid often has to be extended under the most critical conditions without the facilities of a clinic and suitable equipment. This calls for a high amount of ingenuity and sense of duty. The medical corps does not owe its growing importance to the good will of certain benevolent sponsors but exclusively to its outstanding achievements.

Therefore, it seems particularly surprising that the National Socialist leaders were constantly encroaching upon the rights of the medical officers. Only the end of the war accounts for many plans not being carried out. As a matter of fact the older medical officers were very annoyed about this constant undeserved reduction in their circumstances.

## II. MEDICAL SERVICE IN THE REICHSWEHR (100,000 man Army)

The organization of the medical service in the 100,000 man army after World War I was as follows: The entire medical personnel, officers and N.C.O.'s in a garrison were united in a medical squad under the command of the "Standortarzt" (Post surgeon). He had full command over all the medical personnel including the right of discipline. The "Standortarzt" detailed surgeons and subaltern personnel for duty to the different units of the military post. The medical officers performed their duties in the units in full concordance with the respective troop commanders, but were not subordinate to the military commander. Orders and directives of purely military nature such as emanated from the senior commander of the military district were passed on to the "Standortarzt" who made them known to the medical squad. When the troops left their garrisons for maneuvers the necessary medical personnel was assigned by the "Standortarzt". In this case the troop commander issued his orders to the attached medical personnel in a similar manner as the senior officer in the post gave orders to the "Standortarzt".

The superior command of the "Standortarzt" was the Divisional Surgeon who was at the same time Chief Surgeon of the respective Military District (Wehrkreis), (in the 100,000 man army there were 7 Infantry Divisions, the command area of which coincided with the 7 military districts). The term "Division" applies to the tactical unit, whereas a "Wehrkreis" is a unit of territory. The





medical squads of a military district formed the medical section (Sanitäts Abteilung) which was under the command of the Divisionsarzt (Chief of divisional medical services with the rank of a colonel). As a matter of fact he was at the same time commander of all medical squads in his medical unit and as member of the divisional staff, was the advisor and assistant of the military commander of the division and commander of the military district, who also was always the same person in regard to all medical matters.

Beside the 7 Infantry divisions to which the German Reichswehr was limited there were 3 cavalry divisions which were scattered over the whole of Germany in many small units. Medical care was usually extended to them by the infantry medical service of the same garrison and in case the cavalry units occupied a garrison of their own, they also had special medical squads. Only in the latter case did the cavalry division surgeon have direct command over the medical squads of the military district whereas his functions were limited to the right of inspections and suggestions in those areas where the infantry took care of the cavalry units.

Two Army Group Commands were placed over the divisions. The Army Group Surgeons were in command of the medical sections of their area and at the same time were the medical advisors and assistants of the army group commanders in regard to all medical matters.

The highest authority of the medical service of the Army was the Medical Inspector of the Reichswehr (National Defense) Ministry. He had command over all the medical personnel of the Reichswehr on the one hand, and he was medical advisor and assistant of the Chief of the Army Command (Chef der Heeresleitung) on the other hand. He directed the training, induction and distribution of medical officers and non-commissioned officers and was invested with the rights of discipline, promotion and transfer. In the Ministry he acted as supreme advisor and top expert in all medical matters and problems of the medical service. His military superior was the Chief of the Army Command. He was entitled to report directly to the latter as well as to the Reichswehr Ministry.

The office of the Medical Inspector was known as the "Sanitäts-Inspektion" (Medical Inspectorate). Its organization was headed by the Chief of the Section or Chief of Staff who was responsible for the administrative service of the Inspectorate and who had assistants acting as chiefs of the following departments: I Personnel, II Hygiene, III Organization, IV Statistics and Standards, V Pharmacists and supply of medical equipment, VI Veteran's Care, Hospitals and Spas.

As far as purely scientific problems were concerned the Medical Inspector could bring these before the "Scientific Senate". This body had been created in 1901. Its mission was to keep the Army Medical Service well informed about the progress in medical science and to submit proposals concerning the adoption of new procedures and





inventions. The Senate was composed of 16 permanent members, namely 8 university professors and 8 experienced medical officers with special qualifications. There was about the same number of extraordinary members recruited from similar circles. The Senate was convened upon the call of the Medical Inspector. The usual procedure was, that the topics brought forward by the Medical Inspector were commented upon by the experts in written reports which were then discussed in the sessions of the Senate. The quintessence of these discussions was laid down and published in the form of Special Directives. The members of the Senate were at the same time the chief advisors of the Medical Inspector in their respective fields.

The principle that surgeons and all medical personnel be placed under the command of medical officers was thus adhered to throughout. This also referred to evaluation, promotions, and transfers, leaves, etc. The medical officers reported all problems of the medical service which concerned the troops to the military commanders, whose assistants they were and made sure of their agreement. In case of a controversy they were entitled to refer the case to their superiors in the medical service. The troop commanders issued the general orders and directives as far as general military measures became necessary and framed the orders emanating from the medical quarters. We, therefore, distinguish an official channel for military affairs and an official channel for medical matters. The latter deals with the greater part of all medical problems without any intervention of military commands.

The duties of the medical officers consist primarily of the care of sick officers and men, and of the general hygiene of men, billets, messes, food, recreation and sports. Special attention was paid to the prevention and prophylaxis of diseases (medical inspections, instructions, lectures, movies).

The medical officer furthermore had to take care of sick dependents of officers and enlisted men.

Each troop unit had a so called "Revierkrankenstube" (Dispensary or Sick Bay). It consisted of one room for the medical examinations and treatment, bath and two rooms with beds, to take care of minor cases (8 to 10 days). When the German Armed Forces were later authorized to operate their own army hospitals, a number of former army hospitals were taken over again or special military wards were established in civilian hospitals. The chief surgeons of these hospitals were always the same persons as the Chief Surgeons of the post. In posts without a military hospital an enlarged dispensary was established with a number of beds corresponding to about 2% of the effective troops. These enlarged dispensaries were adequately equipped so as to carry through a hospital like treatment. The medical officers in the hospitals and enlarged dispensaries were qualified specialists. Since the number of medical officers stipulated for the German Reichswehr was very low, the





specialists had to divide their time between service at the hospital and the general care of troops.

In each military district there was a hygienic bacteriological and a chemical foodstuff testing laboratory which was chiefly concerned with routine examinations of the soldier's diet and nutritional values.

Special "Sanitätsdepots" (Medical Depots) were attached to the Group Commands in each military district. These depots supplied drugs and dressing material to the military hospitals, dispensaries and surgeons. A processing department was affiliated with the medical depot of the Army Group Command in Berlin for the production of tablets and dressing material, which had to be packed in a compact manner as is necessary for the purposes of the Armed Forces. The Medical Depots of the Army Groups purchased all their raw materials as well as all their special drugs and instruments beyond the possibilities of their own processing and supplied the medical depots of the different military districts.

Pharmacists were attached to each Military District Depot and Army Group Medical Depot and to each Army District and Army Group Commands. The Army Pharmacists were officials of the Army Administration without disciplinary powers and were recruited by voluntary application from civilian pharmacists. The pharmacists of the Military Districts were at the same time in charge of the chemical and foodstuff testing laboratories of the Army Administration. They, therefore, all had to have their special diploma as foodstuff chemists.

The medical personnel of the Reichswehr in the beginning was composed of former regular and reserve medical officers and non-commissioned officers of World War I who were retained. The Military Medical Academy was prohibited after 1918. In accordance with the "Defense Law" the non-commissioned officers and enlisted men had to enlist for 12 years, officers for 25 years of service in the Reichswehr. A separation from the Reichswehr was subject to detailed regulations and could be effected only within a stipulated percentage (5%) of the strength as authorized by the victorious powers.

The enlisted medical personnel were recruited among soldiers who volunteered for this career and were given a course of training lasting for one year. They were employed in the general medical service or in hospitals as attendants. Only very few nurses were employed in hospitals at that time. In the further course of their service they could take special courses and qualify as X-ray assistants, as assistants in chemical laboratories, as masseurs, disinfectors etc.

The medical officers were recruited from voluntary applicants of civilian physicians following the completion of their studies. They had to go through a 6 months basic military training and were then employed exclusively in the medical service. In the beginning of their career they were employed on larger military posts under the guidance and supervision of older medical officers and





later on came to positions where they had to use their own initiative, first in small, later in larger posts.

Especially qualified officers were detailed for several years to medical schools for special training. All specialties were here represented, including children's and women's diseases because of the medical care extended to the dependents. About 10 to 15% of the medical officers were specialists. They were placed in charge of the respective wards of the Army Hospital and larger sick bays.

Short assignments of about 3 months duration to clinics and hospitals were provided for young physicians as a preparation for their job as the only surgeons of a post. A medical officer could obtain as many as 4 of these short assignments.

Special courses of several weeks duration were provided for medical officers of all ranks to acquaint them with the latest advances in the medical field. The courses were held in the form of lectures given by university professors.

The medical officers were employed in full time jobs and received the same pay as the officers of the same rank. The promotion was handled separately according to a special plan. Private practice was allowed in only very exceptional cases. As mentioned before, the medical officers had to enlist for 25 years or at least until they were 45 years of age. A separation could take place only after a 3 months notice and under certain stipulated conditions. Upon normal expiration of the contract a modest pension was paid. The situation of these former army surgeons was not too good. The association of civilian physicians did not accept these surgeons as panel doctors and private practice practically did not exist in Germany at that time.

The number of medical officers imposed by the victorious powers (2.9 per 1000 men) was very small as compared with other armies which had at that time 4 to 5, the USA even 8 surgeons per 1,000 men.

The results were frequent transfers, details etc., in order to cope with the military necessities. With a view of avoiding a stagnation, to maintain an acceptable average age and to make the necessary promotions possible, older personnel, although highly qualified and needed could not be retained. Replacement was often difficult after the generation of young physicians trained during World War I did not come into question any longer. The applications for the position of a medical officer were extremely few, since the young physicians did not like the idea of going through basic military training after leaving the university. Furthermore, the pay was low and the prospects in general not too good. Medical reserve officers did not exist in the Reichswehr.





### The German Navy

Germany had practically no fleet before 1890. The few surgeons required by the naval forces came from the Army and could rejoin the Army later on. The medical officers had the same background as their colleagues from the Army, they graduated from the "Military Medical Academy" and had their basic training in the Army. They had to make up their mind as to a career in the Army or Navy only in the later semesters. In 1896 when the fleet became larger, the two branches were separated. With the view of obtaining the necessary personnel the Navy inducted a) civilian physicians who applied voluntarily for this career, b) physicians who served their required period in the Navy and who decided to stay in it on expiration of their terms, c) 6 students of each semester at the Military Medical Academy were slated for the Navy. A change during the course of study was, however, possible. Only after assignment upon completion of the studies was the choice considered as definite. The Navy had at that time a great number a major positions for medical officers, older officers did not need to retire, which facts lead many a physician to choose this career.

The Navy had hospitals of their own in all large bases with specially trained Navy surgeons and specialists. Two Navy hospitals were located in East Asia, where the former German colony of Tsingtao was administered by the German Navy.

Aboard the larger vessels were sick bays with facilities for operations and sick bays for ward treatment. Small laboratories and the usual medical equipment were also available. According to the number of the crew, several surgeons including specialists were aboard. On smaller vessels the installations were smaller and the number of medical officers lower. For the torpedo boats for instance there was only one surgeon for a flotilla. During World War I no surgeons were aboard the submarines. Hospital ships were not in service in peacetime. These were to be improvised by adapting merchant ships. Aboard these ships there was only the absolute minimum of ship handling personnel, otherwise there were only medical personnel. The ship was under the command of the Chief Surgeon.

The Navy operated medical depots of its own. As was the case with the Army, the necessary drugs and dressing materials were partly manufactured there. The particular conditions aboard ship made it necessary to devote special care to the packing. Instruments and other equipment were purchased from civilian firms.

The pharmacists analogous to the set up of the Army, were officials but were not considered as officers. The rank and personal situation of the naval medical officers were, on the whole, subject to a similar development as in the Army. The medical superior of the naval medical





officer was the Surgeon General of the Army. Only when the Navy was built up further and when the two services were separated was the post of a special Naval Surgeon General instituted in 1899.

After World War I, the Navy was drastically reduced and consisted of only a very few vessels. The number of officers and enlisted men was not to exceed 12,000. The period of obligated service was the same as in the Army, 12 years for non-commissioned officers and enlisted men and 25 years for officers. The task of the Navy was rather one of coastal defense than extended operations. Therefore, shore duties occupied a broader field than assignments to the fleet. Kiel and Wilhelmshaven were the main naval bases, besides which a few small detachments operated in different small naval bases. The organization was headed by the "Chief of the Navy Command" (Chef der Marineleitung) who was a member of the Reichswehr Ministry in Berlin. His staff was known as the "Marineleitung". He had authority over the fleet commanders and the commanders of the naval bases of the Baltic Sea at Kiel and of the North Sea at Wilhelmshaven. The Base Commander, as regards the shore based units, had territorial authority similar to Army District Commanders.

After 1918 a skeleton of former naval officers and enlisted men was retained. Later on the necessary medical personnel were recruited by voluntary applications from civilian physicians upon completion of their studies. In contrast to the practice of former times the basic military training was completed aboard training vessels of the Navy. The careers of the naval and army medical personnel were now completely separated, a change from one to the other was no longer possible. The career of the naval medical officers followed a special plan within the Navy; the same was true with regard to fleet officers and naval engineers. Their promotion took place according to a separate list of ranks which did not depend on the other naval officers.

The enlisted medical personnel of the Navy were recruited from sailors who volunteered for this career and who had successfully completed a course of training and a final examination. Later on they could apply for special training as in the Army.

The organization of the medical officers of the Navy was built up analogous to that of the Army. Since the Navy disposed only of very small detachments besides the main important bases at Kiel and Wilhelmshaven, the organization of medical squads and sections was superfluous. Aboard ship and in the small detachments the medical officers were placed under the authority of the commandant. Thus, there was a closer connection between the medical service and the military command than in the Army. Still, the principle that medical matters should be handled through special medical channels was also adhered to in the Navy.





As a matter of course, the treatment and general medical service followed the same rules as in the Army and in spite of the differences outlined above the personal status of the medical officer was much the same in both services. The differences concerned only minor technicalities arising from the special nature of the two services. We may, therefore, in the description of the organization dispense with many details which have been set forth earlier about the Army.

Like the medical officers in the Army the medical officers of the Navy were also detailed for special training to clinics and shorter courses, especially the younger officers. The 6 months courses at the universities were common to both services. A varying number of naval officers was detailed to each important course of the Army. A special feature of the naval medical service was a possible assignment to the Institute for Tropical Diseases in Hamburg for the few happy officers who could be given an assignment to the fleet on one of the rare authorized cruises to foreign countries.

A so called "Marine Sanitäts Amt" was operating in each of the naval bases at Kiel and Wilhelmshaven. This was an independent institution and was part of the Naval Base Command. The office was headed by a medical officer who, at the same time, was "Base Surgeon" of the respective Naval Base. He was in charge of the medical service and had command over all personnel and medical institutions of his area. He had under his command a hygienic and a chemical laboratory and at Kiel also a Naval Medical Depot. He had a few assistants and dealt with the personnel matters including evaluation, details and transfers. He was also in charge of the Naval Hospitals, the personnel of which was grouped under their chief surgeons into separate medical naval squads.

When later on more vessels were authorized, a fleet surgeon was detailed to the fleet command as a leading medical officer, who had command over the medical officers aboard the ships in a manner similar to the Naval Base Surgeon. If several vessels were operating together in a tactical unit, a medical officer was attached to the commander of the respective unit.

The highest authority of the Naval Medical Service was the "Sanitäts Chef" of the Navy who was a member of the staff of the Commander in Chief of the Navy in the Reichswehr Ministry. He was chief consultant of the Commander in Chief and assistant in all matters concerning the medical service of the Navy. He had full command over all medical personnel, the power of transferring and detailing them and he issued the directives concerning the training and replacement and was the highest superior of the naval medical officers. The military superior of the "Sanitäts Chef" was the Chief of the Navy Command. The Surgeon General of the Navy had the right to report directly to him, as well as to the Reichswehr Minister in all matters concerning the medical service of the Navy.





His staff was known as "Marinemedizinabteilung" (Navy Medical Department) which was operated by two medical officers, one for the personnel matters, organization and training, the other for hygiene, hospital treatment, evaluation and statistics. A special Scientific Senate for the Navy did not exist. The Surgeon General of the Navy was, however, a member of the Scientific Senate of the Army and he had the possibility to raise at any time problems which were of special interest to the Navy and to get in contact with the specialists in any particular field.

The duties of the naval medical officers followed rather closely the pattern of the Army. There were also dispensaries with the naval units ashore and corresponding sick bays aboard ships with the necessary facilities and supplies of drugs etc. In case of a flotilla of small vessels, a medical officer was attached only to the vessel of the unit commander. Enlisted medical personnel were aboard each vessel.

The Navy had taken over the former Navy Hospitals at Kiel and Wilhelmshaven. These hospitals included wards for all kinds of diseases and the respective wards were directed by naval medical officers. The post of a so-called "Family Surgeon" was established at the two main naval bases. The surgeon in question had to provide the medical care for the dependents of the naval personnel. Generally this post was conferred upon a specialist for children's and women's diseases.

At Kiel the Navy had taken over the former Naval Medical Depot, although on a considerably reduced scale. The most common tablets and dressing materials were manufactured in this depot and packed according to the special requirements of the Navy. The rest of the supplies were purchased from private firms. The hospitals and medical services of the Navy were supplied centrally by this depot. The Depot was operated by Navy Pharmacists. Pharmacists were also in charge of the pharmacy of the Naval Hospitals and of the foodstuff testing laboratories. They were naval officials and were recruited from voluntary applicants of the civilian pharmacists.

It is obvious from the foregoing that the medical organizations of Army and Navy had many points in common. Scientific and personal problems and general questions concerning the recognition of the medical officers often necessitated a combined action of the Army Medical Inspector and Navy Surgeon General before military and civilian officials. The two officers as well as their staffs were, therefore, constantly in contact and kept each other posted on all medical matters. Since 1929 the regulations of the medical services of the two branches which apart from a few literary differences had the same contents, were rearranged upon the suggestion of the "Reichswehr Ministry" and adopted by both services. It was furthermore attempted to standardize the terms and names used in the two medical services.





Cooperation of the military and civilian  
medical services.

Only a loose contact existed between the military and the civilian health authorities. The civilian health organization was headed by a "Ministerialdirektor" (physician) in the Ministry of the Interior who was assisted by several specialists. The military services worked together with this organization in all fundamental questions concerning adequate measures against epidemics, vaccinations etc. All orders affecting the Armed Forces were exclusively given by the military medical services. The military and civilian medical services informed each other on the occurrence of epidemics. The Chief Surgeons of the Military Districts were in connection with the "Regierungsmedizinräte" (medical counsellors of the civilian health administration), the post surgeons with the civilian "Kreisarzt" (civilian district physician). In former centuries the military surgeons were not infrequently inducted into the civilian service upon leaving the military service. This, however, was not the case during the last decades, unless the former military surgeons passed a special examination as "Kreisarzt" to begin the civilian career at the lowest level.

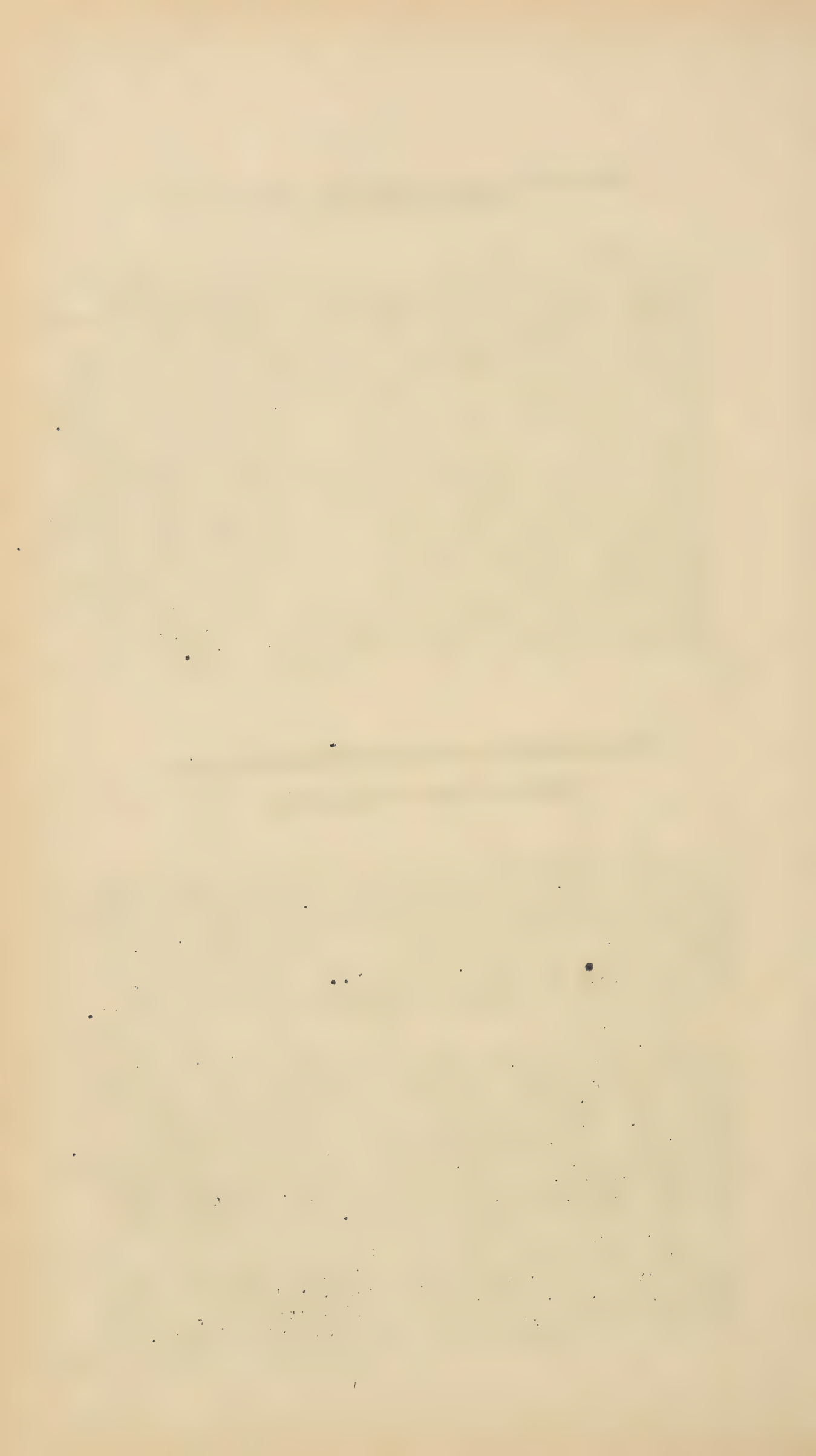
III. EXPANSION AFTER THE RE-INTRODUCTION OF  
COMPULSORY MILITARY SERVICE

After compulsory military service was reinstated in Germany, it became necessary to increase the medical personnel and medical establishments. A slow extension of the Armed Forces step by step, as proposed by the High Command of the Army did not satisfy HITLER's request, therefore, the tempo had to be increased and several plans were linked together. Because of this the difficulty of the tasks was considerably aggravated,

Up to 1939 there were established: 5 Army Group Commands, one of them only for motorized units; 16 corps, 3 of them motorized; for the "West-Wall" 3 additional so called border commands were established as staffs of an army corps. Each army corps consisted of 2-3 divisions. The cavalry units were reduced to one brigade. The Corps General Staffs of the army corps at the same time had territorial functions and were therefore called Military District Commands. The motorized staffs did not have any territorial functions.

In charge of the reserve, drafting, mustering and registration of persons liable for military service and the reserve body of men who had completed their service there were Recruiting District Headquarters whose area of authority was equivalent to a rural district (Kreis; county).





Their superiors were Recruiting Replacement District Headquarters with an area equivalent to a province. The Military District Headquarters were superior to the Recruiting Replacement District Headquarters.

Medical officers were attached to the Recruiting District Headquarters and the Recruiting Replacement District Headquarters. Their tasks were principally to render decisions on all matters of the medical service within the limits of their field of authority. For instance they kept the lists of the drafted physicians and medical personnel, participated in fitness examinations and supervised the reserve medical personnel, their drafting for exercises and refresher courses and so on.

If a soldier was discharged because of physical injury, he was taken care of by the Welfare and Veterans' Administration, a newly established organization. Medical Officers were attached to it, who served as medical advisors. The same organizations took care of the pensions of regular officers, non-commissioned officers and men. A law concerning Veterans' Welfare and Disability was introduced. There were smaller Welfare and Veterans' Administration offices for the area of one or several recruiting district headquarters and one superior Welfare and Veterans' Administration office for the area of a Military District Command. The Military District Headquarters was superior to the Welfare and Veterans' Administration offices.

The organization of the Medical Service remained the same: Medical squads in post areas, then medical battalions with the divisions, with a Division Surgeon in command of all the medical personnel of a division. The Corps Surgeon was the superior of the medical battalions of his corps. The Group Surgeon was the commanding officer of the medical personnel in all Corps of his Army Corps. The Medical Inspector was the superior of all the medical personnel of the Army. In motorized units and border commands too, medical departments were established.

The Surgeon of the Military District was simultaneously the Corps Surgeon. Under his supervision were, in addition to the medical personnel of the various medical battalions of the division, all medical officers serving with the Recruiting Replacement District Headquarters, with the Recruiting District Headquarters, and in offices taking care of veterans' welfare and disabilities. He was their superior not only in professional matters, but also in administrative matters and had authority for disciplinary action. The medical officer of the Veterans' Administration at the seat of the Military District Command was the assistant for all questions concerning expert medico-legal opinions and welfare with the Staff of the Military District Surgeon. The Surgeon of the Military District issued instructions concerning the training and exercises of reserve medical officers and medical personnel according to the general directives





of the Reichskriegsministerium (National Ministry of War) and the Medical Inspectorate, furthermore he advised the establishment of draft boards for the examination of persons liable for service, and supervised and controlled the musters.

Because of all these newly established offices a large number of medical officers was immediately required. In order to furnish these replacements, the Military Medical Academy was reopened, but it was not possible to wait until the students who enrolled there had finished their studies. Therefore, older physicians were accepted in the medical service if they volunteered. At first former regular and reserve medical officer volunteered, who had to retire after the first World War because of the reduction of the Army. And then increasingly, physicians volunteered who had difficulties with the Nazi Party. They were accepted by the Army without any difficulties.

The transfer was made according to the rank they had attained in their former period of active service and the period of their activity as a physician and on this basis their rank was determined. Older physicians were employed as so called supplemental medical officers. Supplemental officers were men who on account of their age were not suitable for general service with the troops. Therefore, they were promoted according to a special officers register, so that because of their age they were not eligible for discharge after a relatively short period of service. The positions with the Reserve and Welfare organizations were held by these supplemental officers and medical officers.

Specialists were needed in a considerably higher number than in former times. Among the re-enlisted physicians there was quite a number of specialists so that the requirements were met for the time being. The more hospitals that were established and built, the more specialists were required. Therefore, in spite of the already barely sufficient number of medical officers, the number of specialists attached to hospitals for scientific training had to be disproportionately increased, in order to avoid a catastrophic critical state that would arise in a few years.

The number of hospitals was increased considerably. The necessary number of beds was calculated at 5% of the actual strength of the Army. Whereever possible, former military hospitals were taken over and completed. If this was impossible, new constructions were planned. This construction program, however, could be only partly completed before the beginning of the war, because of the lack of skilled labor and raw materials. The establishment of one big hospital with all special departments was planned for each larger post; furthermore a hygienic bacteriological laboratory and one for food chemistry were proposed. The number of the clinical laboratories and test stations as well as facilities for examinations and treatment were considerably increased, for instance: Each hospital in addition to roentgen diathermy and





short-wave apparatuses was equipped with large departments for baths for all hydrotherapeutic methods of treatment, under-water massage and the so called "Suda" baths for high irrigation of the intestines. In spas, the former health resorts of the army were taken over again or new ones were planned, recreation and convalescent homes were established in climates favorable for this purpose.

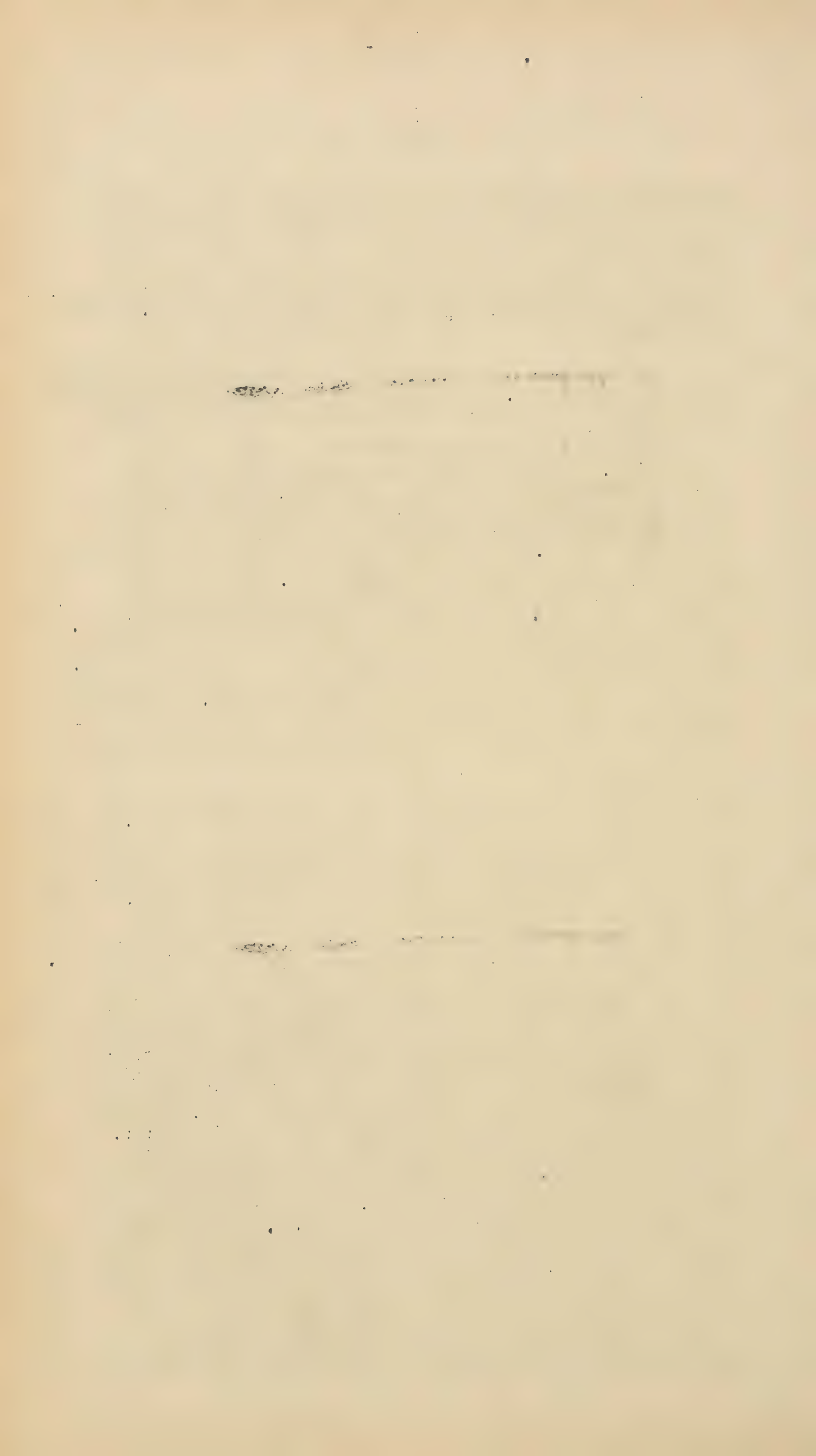
Dispensaries and enlarged dispensaries were equipped better and made larger in new constructions of barracks. They were equipped according to the principles of the former Reichswehr.

Medical supply depots were established in every Military District. The former medical supply depots of army groups were eliminated. The main medical supply depot was established in Berlin in a depot of an army group of the former Reichswehr and a branch was established in Munich. The main medical supply depot on the one hand prepared the special wrappings of medicines and bandages for the requirements of the Armed Forces and on the other hand was the central procurement office for all instruments, equipment, medicines and bandages and all utensils of medical equipment. It had to supply the medical supply depots of the Military Districts, which in turn supplied the hospitals and all medical offices. Procurement was made in the free trade and according to general directives issued by the Ordnance Department.

The number of pharmacists was increased. The positions with the surgeons of the group areas were cancelled. For them a pharmacist was attached to the staff of each Corps Surgeon, 2 pharmacists were employed with each medical supply depot of a Military District, and in the main medical supply depot they were employed according to the increase of tasks assigned to them. There was now an apothecary in every hospital with a pharmacist in charge. The pharmacists were officials with simulated rank. New enlistments were made according to the same principles as with medical officers.

Dental care was put on a new level. With the old Reichswehr, the soldiers were treated by civilian dentists. Among other disadvantages, difficulties had arisen with the treatment of injuries to the jaw, which was a frequent injury with the Armed Forces. It was planned therefore, that medical officers should be detailed to dental clinics the same as they were detailed to other special training. Their task was to supervise dental stations belonging to the Army; rooms of which were provided for in all new hospital constructions. This could not be realized before the beginning of the war, as the time available to carry out these measures was too short. It was planned to supply the reserve with dentists too; every medical company and every field hospital was supposed to have one dentist; communications zone station hospitals 4, the troop units none. The career of the reserve dentists (Dental Officers) could be compared to the one of the reserve medical officers, but only after many difficulties had been overcome. As the





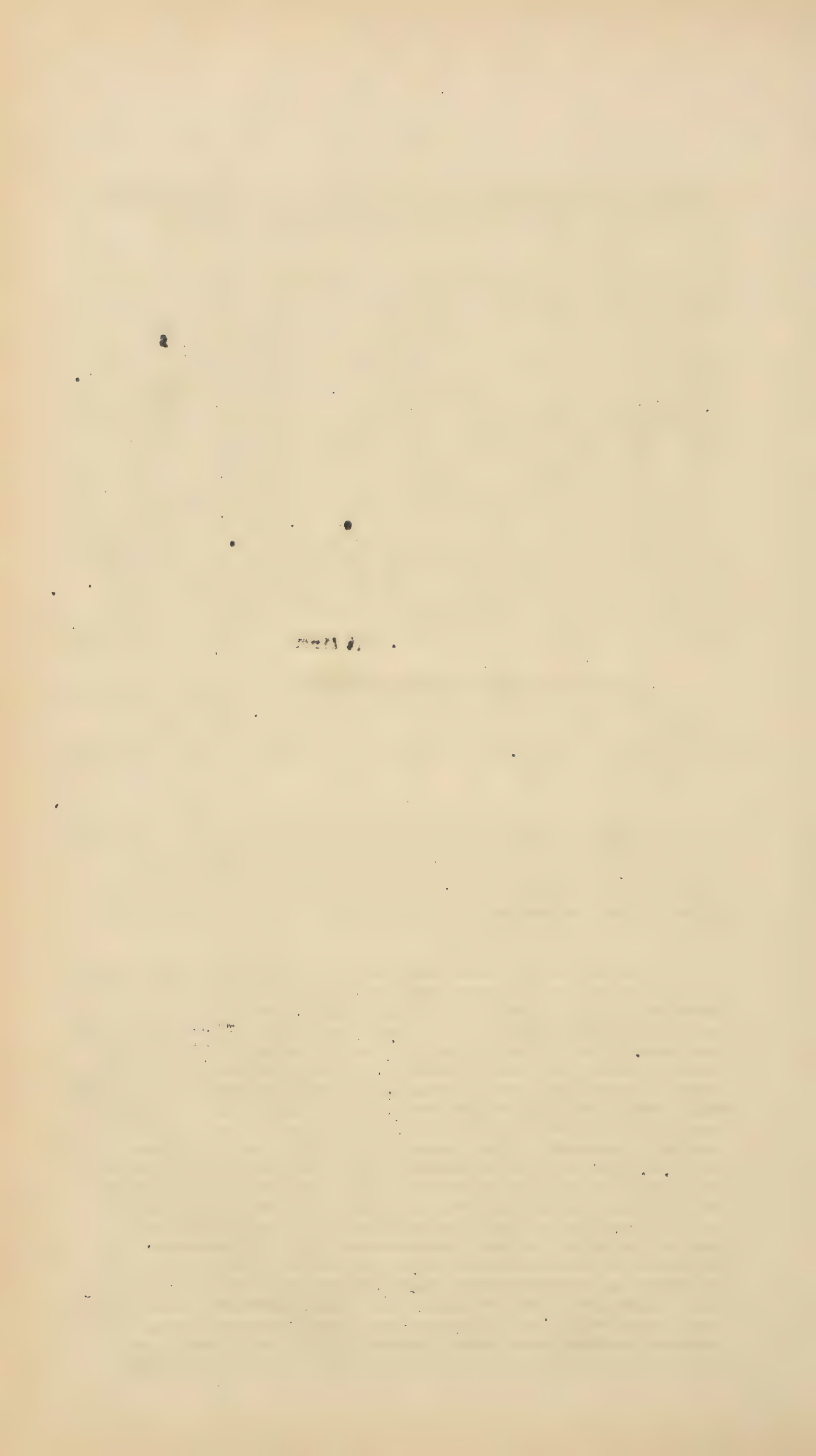
number of civilian dentists exceeded the requirements of the army, dentists could choose, whether they wanted to serve as dental officers or as troop officers.

After compulsory service was reintroduced in 1937 a reserve corps for the medical service was formed, consisting of physicians and medical personnel, who had completed their compulsory service. This compulsory service lasted for two years and was the same for all arms of the service and branches of occupation. Only physicians were an exception. They had only half a year of training as soldiers and then had to serve half a year as medical corpsmen in a hospital, dispensary and so on. Then they were released for further studies. As the time for compulsory service began at the age of 18, it always fell during the time of the medical studies. In drafting, consideration was given to the time of medical examinations. The medical students served the remaining time of their compulsory service in a hospital after the conclusion of their studies in the capacity of an officer candidate (Warrant Officer). It was a regulation, because of a lack of physicians, that all medical students and physicians had to enroll in the medical service, and they could not choose their line of service.

The enlisted medical corpsmen at first had to serve 1 year as soldiers and could then volunteer to attend a medical training school, where they served the second year of their compulsory service. In addition to theoretical training at the school they had to work in the hospitals and dispensaries.

Physicians and medical corpsmen served the periods of training required for reserve personnel in the medical service after they had finished their compulsory period. Personal requests were given consideration to a large extent. Scientific lectures and training courses were part of the exercises. For details about this see the section "Military Medical Academy".

Physicians who had already served during the First World War were not required to render compulsory military service again, they were only liable for training maneuvers, the number of which depended on their age and whether or not they wanted to be promoted to a higher rank. After the restrictions of the Versailles Treaty were eliminated, the German Armed Forces were able, like the armies of all other nations to start the so called preparations for mobilization in case of war. For the medical service this meant that from then on plans could be made for the establishment of mobile medical units, i.e. for medical companies, field hospitals, and base station hospitals and so on. The necessary physicians and medical personnel were furnished by the medical corps, which also was responsible for the procurement of medical and housekeeping equipment. Army authorities made transportation and such things available. This was taken care of by the Recruiting District Headquarters, and Recruiting Replacement District Headquarters. The general directives were issued by the Reichskriegsministerium (National War Ministry) and the Military





District Headquarters. The center for procurement of all medical equipment and instruments, bandages and other material was the Main Medical Supply Depot. Self-made materials were limited to the packing of certain items as already mentioned. Everything else was bought from the free trade.

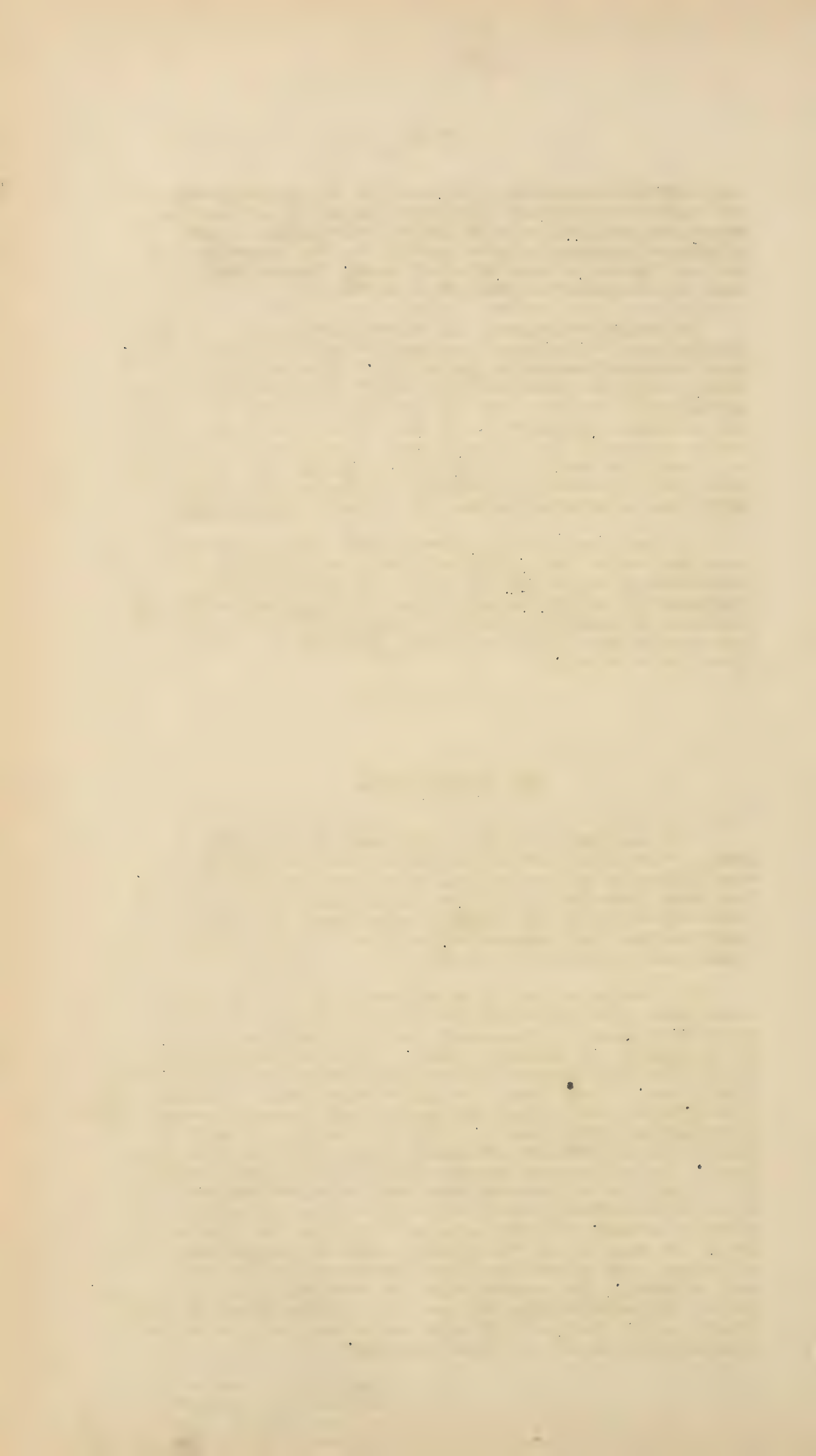
Standard equipment was developed for the troop-physicians, for medical companies and field hospitals, base station hospitals and so on. It was packed in boxes, easy to transport and which could be loaded on any vehicle, so that if one vehicle was out of action the medical equipment would not be stranded some place. X-ray equipment and laboratories were packed in boxes that could be used as work tables later on. The size and kind of packing of medical equipment for mountain units and motorized units was changed accordingly.

If troop physicians served with fully motorized units, they had their own vehicles, where in addition the medical personnel and the most necessary medical equipment could be transported. The medical officers with the remaining units were mounted (riding horses) but at the same time they were entitled to have a space in a sedan.

#### The German Navy.

The expansion of the Navy was not as rapid as the Army. Expansion there depended first of all on the commissioning of new ships, which required some time. The Navy therefore, had the opportunity to develop more organically and quietly and without the many difficulties and hazards which resulted from the rapid extension of the Army.

The tasks of the Navy now more than ever became concerned with extended operations rather than with coastal defense. Personnel for this purpose had to be selected and trained first. This resulted first of all in the increase of training units as well as base divisions. These were the units where the basic training was given, furthermore they had to furnish the replacements for the various other units. With the Navy, a division means only a section and not a large unit as with the Army. It was in the nature of the whole development that first of all the staffs and the cadre units had to be established, which then grew into the units that were required. Staffs were created for the particular types of vessels of the fleet; such as torpedo-boats, cruisers and submarines, the construction of which was started. In command was the command of the fleet and it was directly under the command of the Chief of Naval Operations. Medical officers were assigned as medical consultants to all of these staffs.



The increase of medical officers in the Navy was made according to the same directives as were valid in the Army; that is by volunteers, acceptance of former Navy physicians, of civilian physicians who had already finished their compulsory service, physicians who served their compulsory service with the Navy and volunteered for active service in the Navy and students of the Military Medical Academy. Every year a considerable number of students was trained there for the Navy. On principle, all men who entered the service with the Navy and had not served before were obliged to undergo their military training in the Navy on a training ship.

The two naval district commands with their previously assigned duties continued to function, but their staffs were enlarged according to the increased requirements. The personal positions and the organization of the Navy medical officers remained the same. They were commanders with the authority to take disciplinary action but only in medical establishments such as hospitals, where the personnel was organized similarly to combined divisional medical troops, while the medical officers aboard ships and with the units were under the command of the respective commanding officers of the troops, and only as regards professional matters were they under the command of their medical superior.

I should like to mention that at that time a proposal was made that the medical officers of the Army and Navy should hold the military title of their ranks, as was common with a number of other armies. It was, however, rejected by the Medical Inspector of the Army, as well as by the Surgeon General of the Navy. Both were of the opinion that medical and not military interests were predominant in the profession of the medical officer and that for that reason the medical specification should be expressed in their titles. But the titles used up to then were considered old-fashioned and were changed. The Navy took the opportunity to change its titles too, which were until then the same as in the Army. The titles of the medical officers were now as follows:

Military Rank U.S.Army	Equivalent Rank German Army
2nd Lieutenant	Leutnant
1st Lieutenant	Oberleutnant
Captain	Hauptmann
Major	Major
Lieut. Colonel	Oberstleutnant
Colonel	Oberst





Military Rank U.S. Army	Equivalent Rank German Army
* Brigadier General	General Major
** Major General	Generalleutnant
*** Lieutenant General	General der Infanterie
**** General	Generalfeldmarschall
***** General of the Army	Reichsmarschall

Medical Officers of the U.S. Army	Equivalent rank German Army Medical Corps
2nd Lieutenant (no such rank in U.S. Army MC)	Assistenzarzt
1st Lieutenant (MC)	Oberarzt
Captain (MC)	Stabsarzt
Major (MC)	Oberstabsarzt
Lt.Col (MC)	Oberfeldarzt
Colonel (MC)	Oberstarzt
*Brigadier Gen. (MC)	Generalarzt
**Major General (MC)	Generalstabsarzt
***Lieut. General (MC)	Generaloberstabsarzt

Medical Officers of the U.S. Navy	Equivalent Rank German Navy Medical Corps
Ensign (no such rank in U.S. Navy)	Marine-Assistenzarzt
Lieutenant (Jr. Grade) (MC)	Marine Oberassistenztarzt
Lieutenant (Sr. Grade) (MC)	Marine Stabsarzt
Lieut. Comdr (MC)	Marine Oberstabsarzt
Commander (MC)	Flotillenarzt





Medical Officer of the  
U.S. Navy

Equivalent Rank German  
Navy Medical Corps

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* Commodore (MC)	Flottenarzt
** Rear Admiral (MC)	Admiralarzt *
** Vice Admiral (MC)	Admiralstabsarzt **

The Navy established new hospitals too. Sometimes former Navy hospitals were taken over, sometimes new ones were constructed. As during the first years of the extension of the Army the principle prevailed for reasons of saving money, that the medical establishments should be used together, whenever possible new Navy hospitals were constructed only in places where no Army hospitals were located, on the other hand the Army put soldiers into Navy hospitals. The places for recreation and health resorts were at first used conjointly. Later on this was basically changed and a complete separation took place.

On the other hand the planning for construction of hospitals was the same as with the Army. The medical depots of the Navy were enlarged and increased too. In the beginning the procurement of medical equipment was done conjointly, later on this was separated and only with exceptionally scarce articles was an agreement made concerning their allocation. The arrangement and equipment of hospitals aboard ships was enlarged too, in larger ships the installation of X-ray equipment and small laboratories was planned.

With the medical depots, the chemical testing stations and with hospitals the positions for pharmacists were increased too.

Hospital ships were not employed, but in the case of war it was planned to convert merchant marine ships into hospital ships.

As cruises to foreign countries were now possible in an increased measure, the treatment of tropical diseases and the conditions of life in countries overseas was considered much more in the training.

### The Air-Forces

The establishment of the medical service was especially difficult with the newly formed Air Force. During the First World War there were no medical officers in the Air Force, because at this time the flying



units were part of the Army and the personnel were cared for by army surgeons. There were only a few medical officers who had occupied themselves with the problems of flying.

In order to bridge over this gap, the Medical Inspector of the Army in addition had to supervise the medical care for the Air Force. A medical consultant was detailed to the Air Ministry, but decisions were made by the Medical Inspector of the Army. At this time the point of view was taken, that it was immaterial for the medical treatment, whether a bone-fracture or a tonsillitis were contracted with the Army or with the Air Force. The treatment in separate hospitals, spas and so on was considered unnecessary, would only cause unnecessary expenses, and would require twice the personnel and result in a waste of personnel which was scarce anyhow. If the establishment of hospitals was justified for the Navy, it was only because their units were located at some distance from those of the Army, but this was not the case with the Air Force.

As in the Army, dispensaries and enlarged dispensaries were established for the various units of the Air Force and were staffed with surgeons and medical personnel. It was very difficult to get physicians. Only a relatively few medical officers of the Army and the Navy volunteered to be transferred to the Air Force, and therefore every volunteering surgeon was asked whether he would ~~not like to serve~~ with the Air Force. The units of the Air Force were cared for to a great extent by surgeons of the Army. So it was possible to meet at least the first requirements. In the beginning a transfer from the Army to the Air Force and vice versa was quite frequent and was supposed to remain as a rule for later on. It was planned to train a number of medical officers for the special tasks of the Air Force and especially for their research work. These medical officers could remain permanently in the Air Force and even occupy high positions there. For the most it was intended that they should have the opportunity of changing between Army and Air Force, especially to serve in the hospitals. Advancement and all other personal perquisites were the same as with the Army. Their common superior as well as disciplinary superior was to be the Medical Inspector of the Army. The surgeons of the Air Force District Headquarters were under his command. They were the chief medical officers with the Air Force District Headquarters which corresponded to the Military District Headquarters of the Army. The Air Force District Headquarters were the superior authorities of the Air Force ground organizations. The flying units consisted of maintenance divisions and operating (flying) divisions. These commanding medical officers had two functions, just as with the Army. On the one hand they were the advisors and consultants of their commanding officers and therefore members of the staffs (IVb), on the other hand they were commanders and disciplinary superiors of the medical battalions of the Air Force. These were composed of the medical squads of the Air Force of the various posts and air bases. All medical officers





and medical corpsmen of the medical units in posts of the Air Force were combined in medical squads of the Air Force. If units of the Army and the Air Force were together in one post, it was mandatory that they help each other, whereby, because of the nature of the situation, the Army most of the time was the giving part, while the Air Force was the receiving one.

Students who intended to serve in the Air Force enrolled in constantly increasing numbers at the Military Medical Academy. The newly established Research Institute of the Air Force, for which at first no building could be found, was finally accommodated in the building of the Military Medical Academy. The possibilities for the scientific training of the Army could be used by surgeons of the Air Force.

The medical materials for the first equipment and the current requirements were supplied by the Army. At first there were no pharmacists with the Air Force.

After the Army in this way had made the basis for a Medical Corps, the Air Force demanded a separation from the Army Medical Corps and succeeded, in spite of the objections of the Army, because of GOERING's influence. In 1935 the Office of the Chief Surgeon of the Air Force was established. It had a Medical Inspectorate of the Air Force with 6 consultants. The surgeons of the Air Corps District Headquarters, who at the same time were commanding officers of the medical battalions, were under the supervision of the above mentioned office. The Chief Surgeon of the Air Force was in command of all the medical personnel of the Air Force. The advancement of the medical officers of the Air Force was now separated from the Army. As regards organization, orders, discipline and military subordination they were the same as with the Army. The medical service was performed according to the regulations of the Army. But the influence of the Army medical service on the medical service of the Air Force was eliminated. The career of the medical reserve officers was separated too and all new enlistments were required to undergo the training of the Air Force. Only a few could be trained as aviators because of a lack of training possibilities and therefore only those were trained who had to develop special assignments in the field of aviation research.

The Air Force then established its own medical supply depots and its own hospitals, the equipment and establishment of which was done much faster and more expensively than the ones of the Army because of the influence of GOERING. They even established their own recreation and treatment centers. A medical emergency unit was established at every air base. They were equipped with cars and ambulances and could quickly reach the place where they were needed.

The Air Force founded its own scientific senate too.

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In spite of all trends towards a separation, the medical service of the Army had to help out in many cases in order to keep the medical service of the Air Force operating.

When the war began in 1939, the medical service of all three branches of the service were still in the middle of their development. The vacant positions of active medical personnel were nowhere fully occupied and the majority of surgeons and medical corpsmen at hand had not yet been in the service long enough. The elder medical officers who came from the Reichswehr and represented the skeleton had a very difficult and extensive task and responsibility. Even the medical material for medical units which had to be established in case of war was not yet fully available. No special preparations for war were made. The mobilization of the Medical Corps was made simultaneously with the mobilization of the Army.

#### SS-Units in the Armed Forces (SS-Waffenverbände)

When the Waffen-SS started to establish its own units, this was done independently of the Armed Forces and in an entirely different manner. The surgeons of the Waffen-SS at first were surgeons who were already members of the General-SS. The SS-Surgeons did not hold medical ranks but had the same titles as the rest of the SS-officers. They were altogether in a general officer's register according to which they were promoted. New enlistments could only be made from members of the General-SS, who had served their compulsory service and their entire training with the Waffen-SS, and not with the Armed Forces. The Waffen-SS founded its own Medical Academy, the students of which were selected and trained separately from those of the Armed Forces. The Medical Inspector of the Army did not have any influence on the medical service of the Waffen-SS.

They had their own hospitals and hospital departments in civilian hospitals. While in emergencies members of the Army, Navy or Air Force were accepted in the hospitals of all three arms of service, the same procedure did not hold true with the Waffen-SS, whose members could be hospitalized only in the hospitals of the SS.

As regards organization the surgeons of the Waffen-SS were subordinate to the commanders of their units. Medical squads were not established, as the number of units before the war was relatively small. The leading man of the medical corps was the National Surgeon of the SS, whose working staff was the Medical Directorate. This belonged to the SS-Main Directorate.



### Cooperation with the Civilian Health Authorities.

The connection with the public health offices was changed only so far, as with the already mentioned preparations for mobilization, care had to be taken, that not too many physicians were provided for military service at some single places and that sufficient physicians remained for the care of the civilian population. Therefore, the government medical councillors and the surgeons of the Military Districts joined in discussions in order to fix their requirements and to settle them mutually. The decisive factor for deferment was the professional fitness and not the actual military status at the time, so for instance gynecologists and pediatricians were first of all deferred for the civilian sector. Also all physicians in government employment were deferred as a rule.

For some time the Medical Inspectorate had to fight violently against the efforts of the opponents of immunization - a transitory fad in the days of National Socialism - who wanted that immunizations should be eliminated even during the war. The Inspectorate won a full victory.

The efforts to introduce persons without medical training into the public health service and give them the designation of "Heilpraktiker" with a so called limited permission to practice was discussed frequently. The Armed Forces accepted and acknowledged only approved surgeons and dentists.

The cooperation between the Armed Forces and civilian health authorities with regard to combatting epidemics and the mutual passing of information in case of epidemics remained the same as with the Reichswehr.

### HISTORY OF THE MILITARY MEDICAL ACADEMY.

#### Course of medical training

The Theatrum Anatomicum, founded in 1713 and sponsored by Surgeon General HOLTZENDORFF has to be considered as the forerunner of the efforts to establish a Military Medical Academy. It was the first realization of the idea to raise the scientific knowledge of the "Feldschere" and consisted of series of 6 lectures given by physicians. The foundation of the Charite Hospital at Berlin in 1727 was the next move toward a complete medical bedside training, in the course of which the surgeons also received training in the field of internal medicine. They were called pension surgeons. Only 8 of them held this position. An additional 6 "Feldschere" could receive a limited training, during which they held the position of surgical assistants and which made them candidates for a later participation in the full





training required to become pension surgeons. The pension surgeons had to pass an examination every three months and in addition they had to attend the anatomical lectures. Positions of regimental surgeons were only filled with those Feldschere, who had passed the examination of the Theatrum Anatomicum or who had qualified as pension surgeons. In contrast to this, the mass of the company Feldschere had only the limited training of the barber shops. The Collegium Medicum Chirurgicum founded in 1685, the members of which consisted of Professors of Universities as well as Surgeon Generals furnished the instructors and formed the board of examination, for the surgeons to be trained. During and after the Silesian war under Frederic the Great, the surgeon generals BILGUER, THEODEN SCHLUCKER and MURSIENNA gave lectures for Feldschere, based on their experiences. In addition they published instruction books and sponsored the training of the Feldschere.

These efforts resulted on the 2nd August 1795 in the foundation of the "Chirurgische Pepiniere" which was proposed by Surgeon General GOERCHE. In the beginning about 50, later on 81 Feldschere could be trained in this institute. In 1797, the name of the institute was changed to "Medical Surgical Institute", as in addition to surgery, internal medicine had been taken up as part of the training. Furthermore a training in all medical branches was attempted. In 1805 GOERCHE succeeded in maneuvering the administration of the entire military medical service under his supervision and by this means a division of the authority between "medicus" of the general staff and "surgeon" of the general staff was eliminated.

The Institute soon attracted the attention of scientific circles in the homeland and abroad. The fusion of internal medicine and surgery, made here for the first time, was much discussed. Many visitors studied the arrangement of the Institute and tried to imitate it. The training in the Institute was thorough from the start, lectures in psychology, logic, physics and philosophy were given in addition to the medical lectu-

When the University of Berlin was founded in 1809, the Institute had to undergo a certain crisis. The university wanted to take charge of the Institute, but the military administration wished to keep it under their own supervision. The surgeon of the general staff desired to adjust the educational level of the Institute to the one required of the students of the university. The military authorities on the other hand stubbornly demanded that each company must have a surgeon who at that time still had to hold a low rank in the military service. But it was not possible to get so many surgeons and furthermore they declined to accept such a low rank. Because of this, the bulk of the replacements had to be taken from the Feldschere and the outstanding ones were transferred to the Institute for better training. In order to eliminate the difficulties with the university, a Medical Surgical Academy for the Army was founded in 1811 in addition to the Institute. The lectures of the "Collegium Medicum Chirurgicum" were transferred to





the Academy as teachers and examiners. The students of the Academy were not required to live in the Institute, they were more independent during their training and had to enroll only for a short period in the Army. In 1817 these three separately existing installations: Pension-surgeons in the Charite, the Medical Surgical Institute and the Medical Surgical Academy were combined into one Institute, the Medical Surgical Friedrich Wilhelm Institute.

In 1811 the separation of the surgeons from the barber profession was finally achieved. The demand of the military authorities : 1 surgeon for each company could finally be rejected. Because of this, the Institute was in a position to supply the replacements for the thus reduced number of military physicians. All "Feldschere" and surgeons with an insufficient training were eliminated. The military physicians generally held the rank of an officer, the title "Physician" was introduced in 1820, at first for the higher fully trained positions and later on was granted to all of them. Starting in 1825, a final examination (at the end of the highest grade of secondary boys' school, after 9 years of preliminary schooling, entitling the successful candidate to matriculate without any further test at any German university (Editors Note)) and the attainment of the highest medical approval was required for enrollment in the Institute. This same year, the students were, contrary to former times, admitted to the Institute at the beginning of their studies. Up to that time, the students were "Feldschere" already in the service, who received additional training in the Institute. Now the students were members of the Institute during the entire time of their studies.

In 1832 the profession of hospital assistants was established, (equivalent to the non-commissioned ranks of the medical corps of today), into which the former "Feldschere" of the companies could be transferred, but they remained in the rank of N.C.O's. In civilian life there was up until 1852 a differentiation between "full-physicians" and "wound-physicians" of the first and second class with a so called full and limited approval.

In 1894 at the time of the centennial anniversary of the founding of the Institute the name was changed to "Kaiser Wilhelm Akademie für das militärärztliche Bildungswesen" commonly called "Academy". A new building for the Academy was erected in Berlin 1910 for the old one had become too small. The number of the students at that time amounted to about 400. 70% of the active medical officers came from the Academy, the rest were civilian physicians who had voluntarily entered the service.

The compulsory military service as troops, introduced in 1813, amounted to only one year for students; medical students served only half a year in military training with the troops and another half year as medical officer candidates in the medical corps. The students of the Academy served for one half year with some unit during the first summer term, were then granted leave

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into the reserve and only after finishing their studies did they again enter the military service as medical officer candidates. The medical officer candidates were then ordered to the Charite hospital for 1 year for further practical training at the bedside and after that were transferred to the troops. Here too, the army medical organization was ahead of the civilian medical service. It was much later, that the civilian physicians obtained their approval as physicians only after they could prove that they had finished 1 year of training in a hospital or clinic after they had passed their state medical examination.

The students of the Academy were civilians during the period of their study, they paid for the lectures, books, instruments and examination fees themselves. The state paid only allowances and granted free lodging in the Academy, but no subsistence was paid. The students were obliged to serve twice as long in the Army as they had studied at the Academy. They were on the same level with the civilian students, attended the lectures with them and were subjected to the same regulations and conditions during their study and their examination. They even took their examinations before the same board of examiners. In 1825, after the introduction of complete studies at the University, the Collegium Medico Chirurgicum as the recognized authority for lectures and examinations was disbanded. The students of the Academy had to attend other courses in addition to their medical lectures: training in extraction of teeth and in anaesthesia, both of them with practical exercises; practical courses in laboratories, bacteriological courses - especially examination of water. These courses generally took place during the semester holidays. It was emphasized that students who had attended several semesters at the university should perform practical work as voluntary assistants in a hospital during their holidays. A Captain, MC, was appointed for each group of students, he had to supervise and advise them regarding their studies. He held weekly lectures and instruction hours in fields requested by the students (Kolloquia), explained to them the extensive collections of the Academy and helped them to compile their dissertation and so on.

Their general education was considered as well and they were given lectures in languages, psychology, philosophy, medical ethics, culture and history of art by professors of the university. Gymnastics and sports were introduced as early as 1867, a time at which this thought was still a strange one to academic life. The students had regular training in horseback-riding.

An older medical officer supervised the entire training and education of the academy as a Studiendirektor (chairman of education council), a Surgeon General was in command; the official director was the Surgeon of the General Staff of the Army.





In 1918 the Academy had to be closed according to the Treaty of Versailles; in 1919 the last students returning from the First World War left the building. The building was then used for the newly established National Labor Ministry.

On the first of October 1934, the Academy was reopened and the old building was used again. From then on it was called "Military Medical Academy". The number of students to be admitted was equal to 5% of the actual strength of the Medical Officers. At first the Academy was used for Army, Navy and Air Force jointly. The only difference was that the students served their compulsory service in the different branches of the Armed Forces. the increasing strength of the Armed Forces, the building did not suffice to shelter the whole group of students anymore in spite of close quartering, so advanced students were permitted to study at other universities. There, detached sections, so to speak were established under the supervision of older Captains of the Medical Corps; finally 5 such detachments existed at the following universities: Koenigsberg, Breslau, Munich, Muenster and Wuerzburg.

The basic principles concerning the medical studies and the examinations were not changed as compared with the conditions before the First World War. Some formal changes occurred, stipulated by the newly introduced national defense legislation. The students had to perform a half year of military service as soldiers and then were candidates for a position with the regular army. That means that from then on they were soldiers even during their time of study and received - in contrast to former times - pay according to their rank. Directives were given that they had to attend all lectures in civilian clothing. The fees for the studies and the books had to be paid by them; allowances were not granted anymore. A special obligation for service in return for the training in the Academy was not required, because the students had, like all other active members of the Army to stay in the service, until they were released, because of sickness, insufficient ability or reaching their limit of advancement according to the law pertaining to national defense. The military service and training required by the army legislation were performed by the students according to special regulations: at the sports school in Wuensdorf, the infantry school in Dresden and in hospitals. All these periods of service were served during the semester holidays. The student was released, if he could not successfully pass the first part of the training, these practical exercises, or the medical examinations. Subsequent to the first medical examination the students were promoted to corporals, and after passing the 7th semester, to sergeants in the Medical Corps. The students could, according to their wishes, be released during their holidays in order to get practical training in hospitals or clinics.

Special consideration was given to additional scientific training. Courses were given in all European languages.



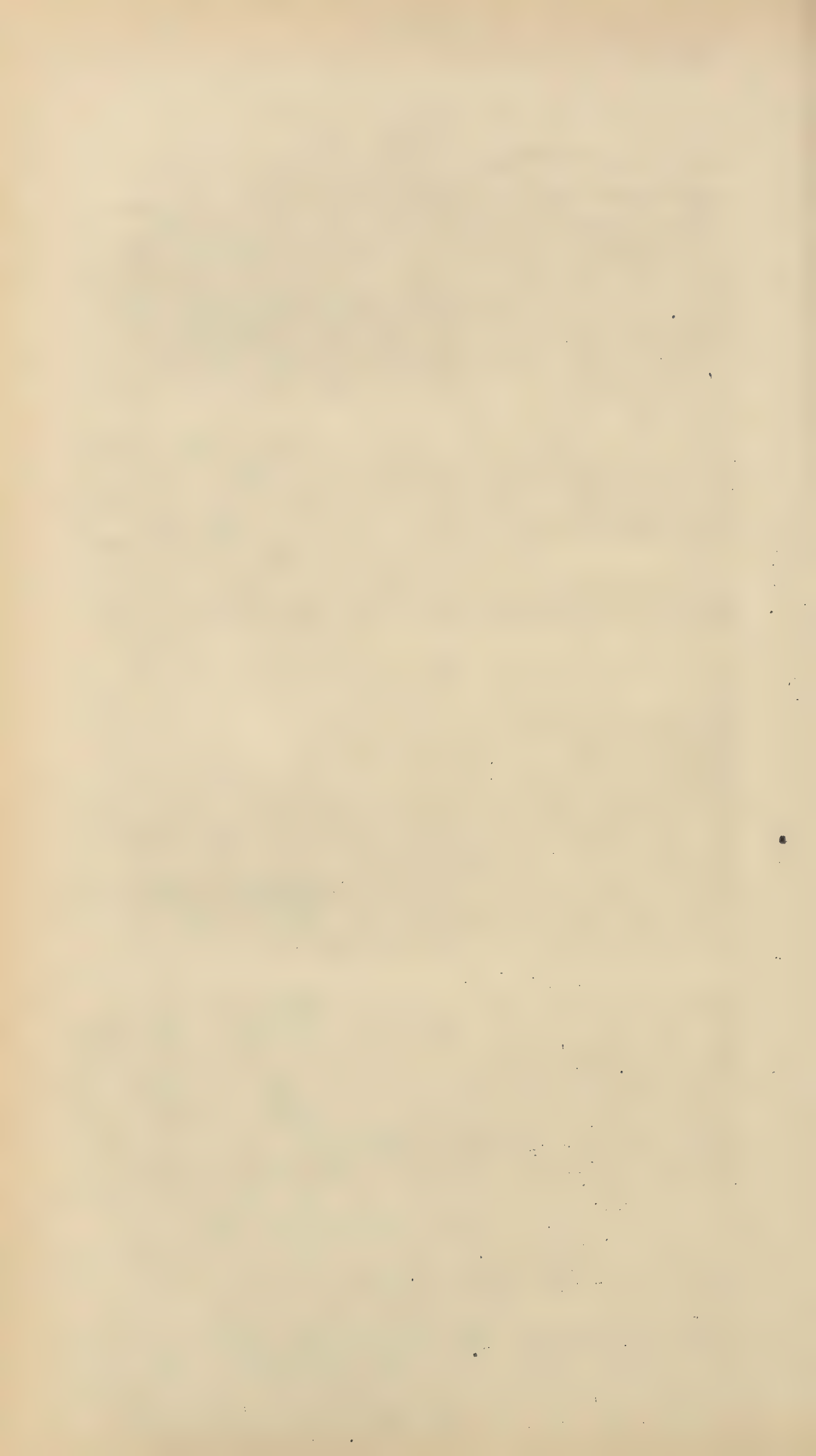


now with the goal of passing an examination as interpreter. Lectures in psychology and about culture and history of art could be attended voluntarily by the students. Special courses in war surgery, war pathology, hygiene under war conditions were given, using the large collections of the Academy for demonstrations. Courses in roentgenology, especially important on account of the mass X-ray examinations executed in the Army, were held, hydrotherapy, tropical medicine, courses in massage and practical exercises in the extraction of teeth and anaesthesia could be attended. Sport, music and social activities filled the leisure hours. The students formed a large orchestra with full instrumentation and even the conductor was a student. Training in all kinds of sports was given to sport enthusiasts. Many nice trophies were won by the Academy in sport competitions within their own circle or with civilian sport groups and international teams.

At first the Academy was used jointly for all three branches of the Armed Forces. The students served only their compulsory service in the branch of the Armed Forces to which they were attached and attended the few military exercises and courses; but in general, the training including the special courses was the same for all. The number of the students increased so considerably during the war, that the already mentioned detached sections had to be increased too; in Prague and Vienna for instance, such detached sections were newly established. This opportunity was utilized by the Navy and Air Force to found their own Academies in 1940; the Navy in Tübingen, the Air Force in Gatow near Berlin. The plans for training remained the same, the only difference was, that each academy had its own commanding officer with his staff under the supervision of the Chief Surgeon of the respective service. The influence of the Medical Inspector of the Army extended only in so far, that his suggestions were complied with.

Naturally, the Army's demand for surgeons was large during the war. The Medical Inspector therefore, required that medical students of the civilian universities did not remain with the troops, but were sent back to the universities to finish their studies, after they had served a certain period of frontline duty. As, according to the law they were still obliged to serve in the Armed Forces, student battalions and companies were established in university cities, where these students were kept together. Medical officers were the commanders of these battalions and companies. The students had to make their examinations in proper time, in order to provide replacements for the surgeons lost in the front lines. If the students were not fully fit for duty in the front lines because of their health, they were transferred to the civilian sector.

This organization was not liked by the Nazi party, because it wanted to combine these young medical students in their own groups to train them politically. But the



Medical Inspectorate of the Army succeeded in avoiding any political training by the party. Only with the introduction of the so called N.S. (national socialist political training) officers were the usual lectures given by them. The students served their practical training and courses, as required by the medical studies, in medical formations of the Army, in order to overcome the reproach of being called "slackers". It has to be mentioned, that the students of the Military Medical Academy alternated between studies in the homeland and front-line duty. The two other branches of the Armed Forces followed the same procedure.

The collections of the Military Medical Academy were saved in spite of all the hazards and were carefully improved after having been transferred back to the Army.

The library, established with the foundation of the Pepiniere in 1795 originated from the early days of the Collegium Medico Chirurgicum and contained many old manuscripts and paintings of historical and artistic value. It was continuously enlarged - by donations of all medical officers (9000 volumes were donated at the 100th anniversary alone) until it was the largest medical library in Europe and exchanged volumes with all international libraries.

The pathologic anatomical and war surgical collection included valuable preparations from all wars of the last century, exhibited in many halls.

The hygienic laboratory not only served for scientific undertakings but also contained a collection of all procedures and apparatuses for disinfection and tables concerning the occurrence of epidemics during the last wars.

The statistical department not only elaborated current statistics of the single cases of sickness but also developed a new system, concerning the cases of sickness of the single soldier; e.g. an individual statistics. The statistics of the First World War originated there.

The chemical laboratories tested the medicaments of the Army. Basic instructions concerning the manufacture and character of the food and preserves of the Army originated there.

The workphysiology department was engaged in determining the most optimal conditions concerning equipment, armament, clothing and so on of the soldier with regard to the point of view of health.

The chemical physiological department treated for instance the question of blood substitute liquids in addition to other work in their field.





Historical interests were predominant in the physical medicine department. Before the First World War they possessed the first Roentgen-apparatus in Berlin; patients were sent to the Academy for X-rays by various hospitals and clinics. Examinations concerning color photography and the use of radio waves for medical purposes originated there.

A department for tropical medicine completed the possibilities for training and research.

In addition there were models of all special fields of medicine and collections of colored mouldages for instruction and training purposes, and an almost uninterrupted collection of models of all medical establishments, organizations and medical equipment, even of foreign armies, where the progress of the Army Medical Corps could be followed for centuries. Furthermore it had a collection of medical instruments and medicaments (the first tablet was made in a medical supply depot and then generally introduced to the medical profession).

Auditoriums, equipped with modern projection apparatus, modern microscopy lecture halls, and places to work in the various laboratories offered abundant possibilities for professional training of students and medical officers.

These collections, departments and laboratories were developed as scientific examination and research posts. There all examinations were undertaken, for which the local facilities of the military posts frequently did not suffice. They were not only meant to raise the abundant treasure of scientific material of the Armed Forces, but also to stimulate the scientific work of the medical officers and to direct special questions to a central scientific evaluation.

The old building grew too small for all these establishments. When therefore the idea was discussed, of combining all university institutes in Berlin in a university town in the western suburbs, a complete new construction for the Military Medical Academy was planned. But this project was never realized.

During the war these laboratories and collections of the Academy were the studies of the Special Consultants, who belonged to the staff of the Medical Inspector. They were generally called "Institute" as for instance for military hygiene. The missing medical specialities: pharmacology, forensic medicine, psychiatry, were founded new. They were all combined into instruction group C. Instruction group A included the pre clinical semesters and instruction group B, the clinical semesters of the students of the Academy. They had their own commanders (Medical Officers), as the organization had increased to such an extent that the Commandant of the Academy could not manage it alone, but the three instruction groups were under his command.





Scientific training subsequent to the studies  
at the Academy.

This was cultivated with all available means. The Medical Inspectorate strictly adhered to the point of view, that the prestige of all the medical officers rested only on the professional capability and scientific performances of the individual. Only they give recognition and confidence to the medical officer, especially under difficult circumstances which cannot be granted solely by rank and position, even in case of other special personal qualifications. The copious stimulations, offered by everyday practice can be recognized and evaluated again for practice only by scientific adjustment.

The number of small and large scientific units was constantly increased; assignments to scientific congresses and sessions took care that the special training remained on a high level.

The number of refresher courses at the universities was increased allowing that each medical officer could attend such a refresher course every 5 years. In addition, courses using the collections of the academy and at clinics were held.

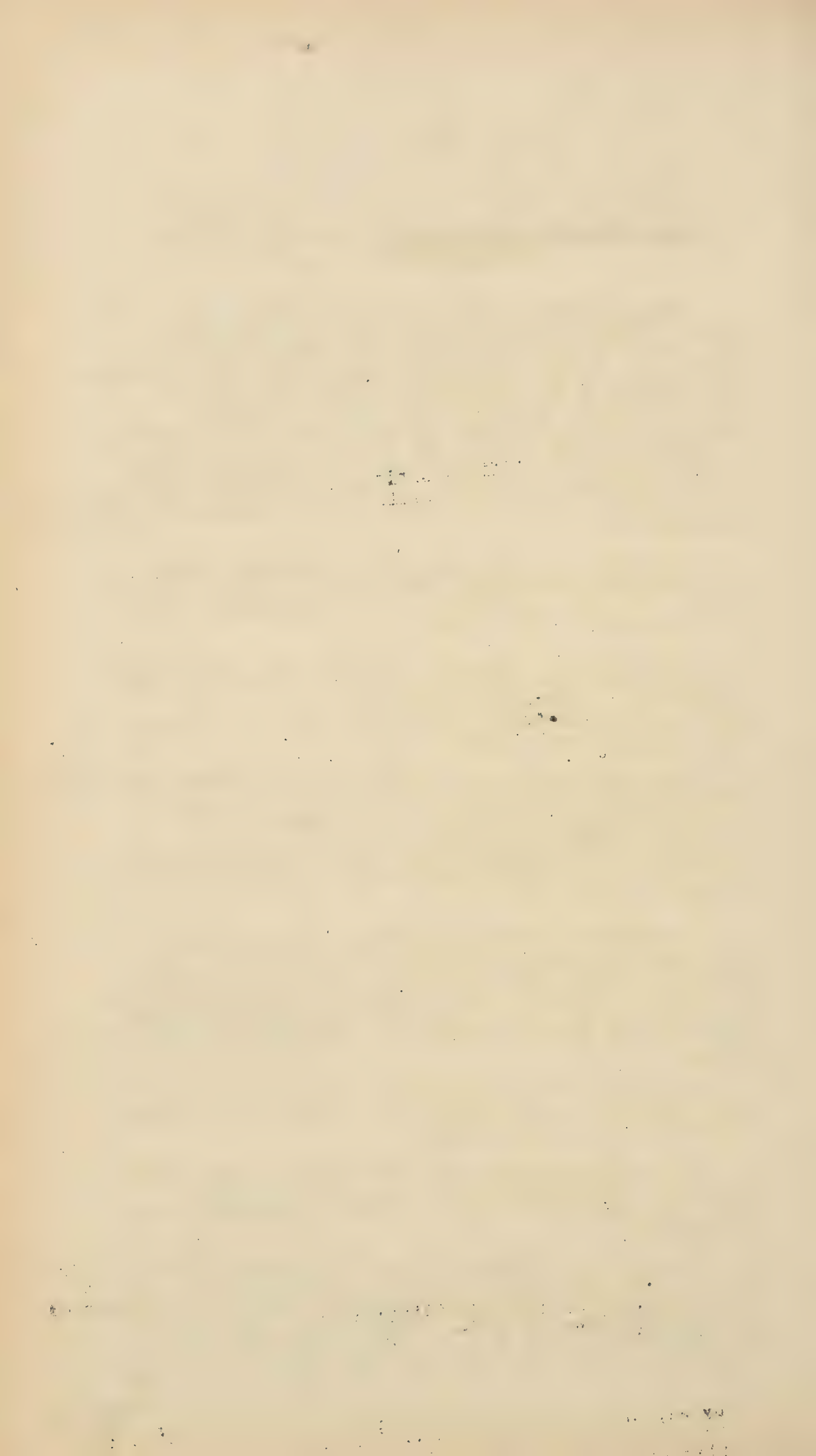
The former Military Medical Society was re-established and opened branch offices at all military posts. It organized scientific evenings with lectures held by university teachers and well known clinicians. It was furthermore suggested that the medical officers should take interest in civilian scientific societies at their military posts.

A scientific reference library was issued to each hospital, sick bays received smaller ones. The volumes could be obtained according to the requests of the medical officers. The laboratories of the hospitals were equipped in such a way that not only the current examinations, but also scientific work could be performed there.

The journal "Der Militärarzt" which ceased to exist in 1918, was re-established and soon had a large circulation and many readers.

The military part of the profession was advanced by way of medico tactical exercises and war games under the supervision of the division, corps and group physicians.

The period of obligatory duty and exercises of the medical officers of the reserve was used to enable them to participate in all possibilities of training prescribed for medical officers of the regular army. In addition they were trained in the so called medical officers reserve units where they attended local scientific lectures



and medical tactical training. The Military District physicians and the physicians with the Recruiting Replacement District Headquarters were the directors and well known specialists were the teachers in these sessions. These lectures soon gained popularity with the civilian physicians.

During the war, scientific tasks and training were not neglected, even under field conditions. In accordance with the supervising medical officers held refresher courses for young medical officers, who were not carefully trained during the war. Demonstrations of patients regularly took place at large hospitals, and army and group physicians urged their special consultants to give lectures which sometimes had the character of a scientific congress.

## V. MEDICAL SERVICE IN THE SECOND WORLD WAR.

### 1. Top Organization

Towards the end of the era of the "Reichswehr" an increasing assimilation of the medical service of the Army and the Navy had taken place, even joint directives were issued. With the beginning of the extension of the Army this unification was furthered, medical service in the Army and Air Force was together, the Medical Inspector of the Army was the joint superior. In the following years a sharp separation took place. The Medical Inspector of the Army, being the oldest one and having the largest responsibility was consulted as the advisor of the Reichskriegsminister (National War Minister) general questions of purely medical nature, but in every other respect the medical inspectorates of the three branches of service worked side by side, independent of each other especially in matters concerning organization, personnel and material. The Waffen-SS (Elite Guard) had its own ways from the beginning on and did not have any relations with the Armed Forces.

#### a) The Army.

Subsequent to the release of BLOMBERG and FRITSCH, the Führer Adolf HITLER himself took the position as the Commander in Chief of the Armed Forces, General KEITEL was his Chief of Staff, so to speak and had the title "Chef des Wehrmachtsamtes" (Chief of the Office of the Armed Forces). In this Office of the Armed Forces, the general matters of the three branches of the Armed Forces were combined: national defense, press and political matters, Recruiting Replacement and matters of Veteran's Welfare and Pensions.





This meant practically that the Medical Inspector could no longer report to the highest military authority of the Army, as he had been able to do before, but his reports ended with KEITEL. It further meant that, with regard to everyday routine duties there was no longer a common superior office that could compromise with the several branches of the Armed Forces and in exceptional cases even direct them against their own will, if necessary, as BLOMBERG had done before. On the other hand, the tendency towards independence increased more and more and special requests were carried through, depending more or less on importance and influence of the chief of the branch of the Armed Forces concerned.

The Medical Inspectorate, up to then having a relatively independent position in the Ministry, was now, in spite of its resistance, fitted into the hierarchy of the military offices and was subordinate to the General Office of the Army. The Medical Inspector had the nominal right - only for himself - to report directly to the highest authorities, but this ended practically at the Chief of the Army High Command and the Chief of Staff of the Armed Forces. In order to report to these authorities, he had to contact first the Chief of the General Office of the Army, in matters concerning personnel the Chief of the Personnel Office, in matters of administration the Chief of Administration had to be contacted first. This naturally aggravated the course of duty considerably, in the successive stages of appeal the requests and suggestions of the medical Inspectorate could only be attained with difficulty.

With the beginning of the war, the personnel of the Medical Inspectorate of the Army had to be multiplied according to the increased tasks. Subordinate to the Medical Inspectorate was a Chief of Staff, who directed the entire internal course of duty and subordinate to him were these four chiefs of departments:

1. Personnel - Department with sub-departments for regular medical officers, reserve medical officers, disciplinary department and matters concerning students.
2. Department for Science and Health with sub-departments for hygiene, recruiting replacement, welfare and pension, expert opinion, statistics, health and consulting specialists.
3. Department for Organization with sub-departments for transport, hospitals in the homeland and for the field army, medical equipment, dental service, nurses, economic equipment of the medical establishments, training of medical personnel (exclusive of officers).
4. Pharmaceutic and chemical department with sub-departments for medicines, bandages, medical equipment, chemical laboratories, and a personnel department for pharmacists.

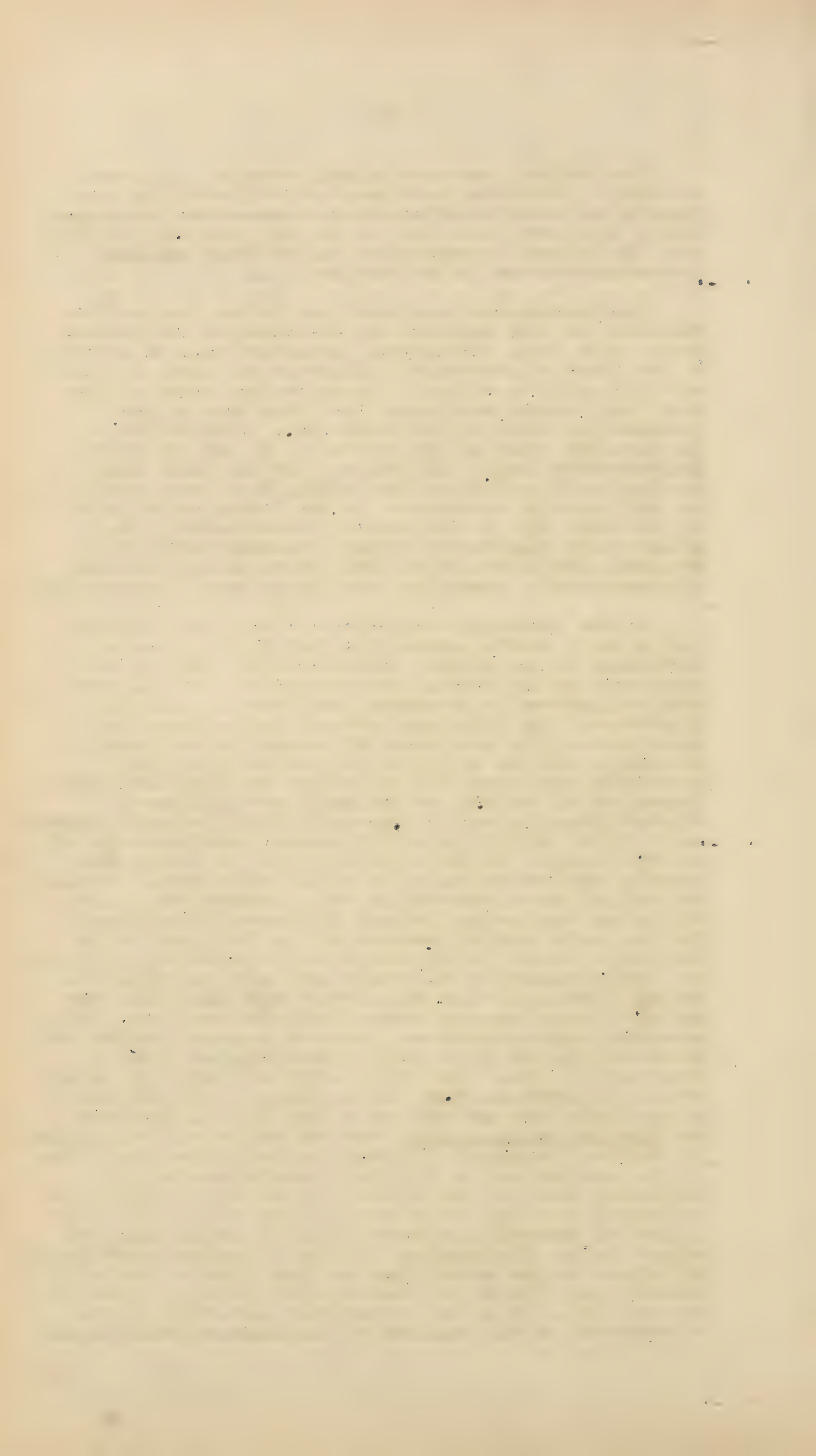




The Medical Inspector himself remained stationed in Berlin. With the field Army the office of the Army Surgeon was established as his representative so to speak. During the First World War, it was the reverse. At this time the Medical Inspector was in the field and his representative was in the homeland.

The highest military authority in the homeland was the Chief of Army Armament and Commander of the Reserve Army. With this, the Medical Inspector had, in addition to the Chief of the General Office of the Army, one more superior military office. The up to then Chief of the Army High Command now headed the Field Army as the Commander in Chief of the Field Army. Subordinate to him were the Chief of the General Staff and the General Quartermaster (G-4). The Surgeon for the Field Army was part of the staff of the latter. That means that he was not directly subordinate to the Commander in Chief of the Army, but to the General Quartermaster. He could report immediately to the Commander in Chief of the Army, but before he reported there he had to clear all contestable questions with the General Quartermaster.

In the beginning the Surgeon of the Field Army had only a small staff, because the bulk of all matters pertaining to the medical service was supposed to be elaborated by the Medical Inspectorate in Berlin. Very soon this proved to be unsuitable; therefore, he got 5 advisors: for personnel matters, for hygiene, for organization, for hospitals and evacuation problems, for statistics and for supply of the medical materials. As already mentioned, the Surgeon of the Field Army belonged, as an advisor, to the Staff of the General Quartermaster, he was the superior of all Medical Officers and N.C.O.'s as well as of all medical establishments of the Field Army. He was subordinate to the Medical Inspector, who was the superior of all the medical personnel and medical establishments in the homeland and in the field; and furthermore he gave the general directives for the entire medical service in the field and in the homeland. As he was stationed in the homeland, he visited the establishments of the Field Army only on inspection trips. Because of this his contact with the Field Army was more loose than his contact with the homeland. As sometimes urgent decisions, even of a general nature had to be made in the Field Army, inconveniences arose from time to time. Therefore, after the death of Surgeon General WALDMANN in 1940, the position of the Surgeon of the Field Army and the one of the Medical Inspector was combined in one person, but the staffs remained separated. The Medical Inspector in person now commanded the office in the homeland and in the field simultaneously and therefore, then had the possibility to stay either in the headquarters of the Field Army or with the Reserve Army in Berlin, depending on where he had to settle the most urgent tasks. For instance in case of sudden accumulation of injured in the front lines he could forward decisions directly and without any loss of time to the offices in the homeland. If he was absent from one office he was represented: in the homeland by the Chief of Staff of the





Medical Inspectorate, in the Field Army by the Chief of the Department of the Surgeon of the Field Army, (a newly established position).

In the homeland the group and division commands were eliminated and consequently the group and division surgeons. The surgeons of the Military Districts were directly subordinate to the Medical Inspector. Subordinate to the surgeons of the Military District were the medical battalions, whose commanders were the superiors of the entire medical personnel and all hospitals of their area of responsibility. Furthermore the Medical Replacement Units including the above mentioned Medical Student Companies and Battalions were subordinated to the Surgeon of the Military District. These units trained the Medical Officers and personnel and managed the replacement of officers and N.C.O's.

With the Field Army, at the beginning of the war, the Army Surgeons were directly subordinate to the Surgeon of the Field Army. The Army Surgeons were the superiors of the Corps and Division Surgeons. With the increasing extension of the theaters of war it became necessary to insert an intermediate office and therefore, starting in autumn 1942, the Army Group Surgeons were established, under whose command were 3 to 4 Army Surgeons. The Army Surgeons and Army Group Surgeons on the one hand were the advisors and elaborators of their Commanders in Chief and furthermore were members of their staffs. As such they were obliged to work according to the military directions given by the Chief of the General Staff and of the Quartermaster. But their right of reporting directly to the Commander in Chief took effect quite differently, because of the closer personal relations they had than for the Medical Inspector who, in the top organization, had to go through the numerously inserted military offices. On the other hand the commanding medical officers were the superiors of the entire medical personnel, all medical establishments and of the medical formation units of their area of duty.

The Army Surgeons and Army Group Surgeons were superior to the Army Medical Battalions, in which the medical companies and field hospitals which were directly under their command, were combined under the command of a medical officer. The motorized ambulance evacuation platoons too, were part of the Medical Battalion. The commanders of these medical battalions were the superiors of their subordinate units as regarded duty, personnel and disciplinary matters. The group of consultant specialists was attached to the staff of the Medical Battalion. Contrary to the First World War, a communication zone physician for the area behind the frontlines did not exist.

The longer the war lasted, the more compressed were the rear areas of the Field Army and its right of command limited. The areas of command of the chiefs of the Armed Forces were established, as for instance: Eastland, Ukraine and so on, which had their own commanding medical officers and their own medical establishments, organized in the same manner as with the armies. Civilian adminis-





trations as in France, in the General Government (Government in Occupied Territories) and White Russia were established with their own civilian medical service. Their authority was increased more and more. They were responsible for the medical care of the civilian population. The attempt to distribute high positions and the resultant conflicts in authority delegated to many different offices became more and more obvious. So, for instance in the medical field there originated a co-existing of medical establishments of the Field Army, the Navy, the Air Force, the Elite Guard, the Commander in Chiefs of the Armed Forces, the Government, and the many other organizations in the field. It was almost a study in itself to unravel the various authorities, official channels, and the relations of subordination. The offices of the Army tried in vain to get this simplified and clear, because only the simple thing has a chance of success in wartime.

Consulting Specialists. They were approved scientific university lecturers or directors of hospitals who were attached to the staffs of the Army Surgeons, Army Group Surgeons and in the homeland to the Surgeons of Military Districts. Their task was to regularly visit the medical establishments of their area of duty, to supervise the treatment of patients and to participate personally in the treatment of patients, for instance to surgeons in the main-dressing stations or in hospitals which had an especially large accumulation of injured, or the internists whenever there was an epidemic. They were supposed to influence the attending physicians instructively at their place of duty, to visit the special departments and to give patient demonstrations for all physicians. By these means they learned which diseases were of foremost interest, which difficulties the physicians had to meet and which scientific problems had to be solved. Patients whose diagnosis was not clear or whose treatment was rendered difficult could be concentrated in certain special wards, for instance at the normal location of the respective quarters of the consulting specialists where they could treat them exactly and observe them themselves. They regularly reported their experiences to the Army Surgeons and by this could see that faults, which they had observed could be eliminated. They did not have any disciplinary superiority towards the physicians of the Army, their task was purely scientific. For the commanding medical officers they were the medical scientific organ of control, and the place where research problems could be recognized, stimulated, scientifically elaborated and be made instructive by lectures. With the already mentioned refresher courses and lectures the consulting specialists held the bulk of that work. The laboratories of the armies and so on were at their disposal for research work and studies.

The Medical Inspector too had a group of such consulting specialists. All the reports from the Field Army, and the homeland were received by them. They evaluated them, consolidated contradicting opinions and made pro-





posals to the Medical Inspector to initiate research, suggested changes and gave directives for diseases which were new or very seldom observed in peace time and their treatment in the form of leaflets for all physicians. During trips they verified reports at the very place and remained in constant personal contact with the consulting specialists in the field and the homeland. Their work and research studies were the laboratories and collections of the Military Medical Academy, which have been mentioned before. The consultants were combined there in instruction group C.

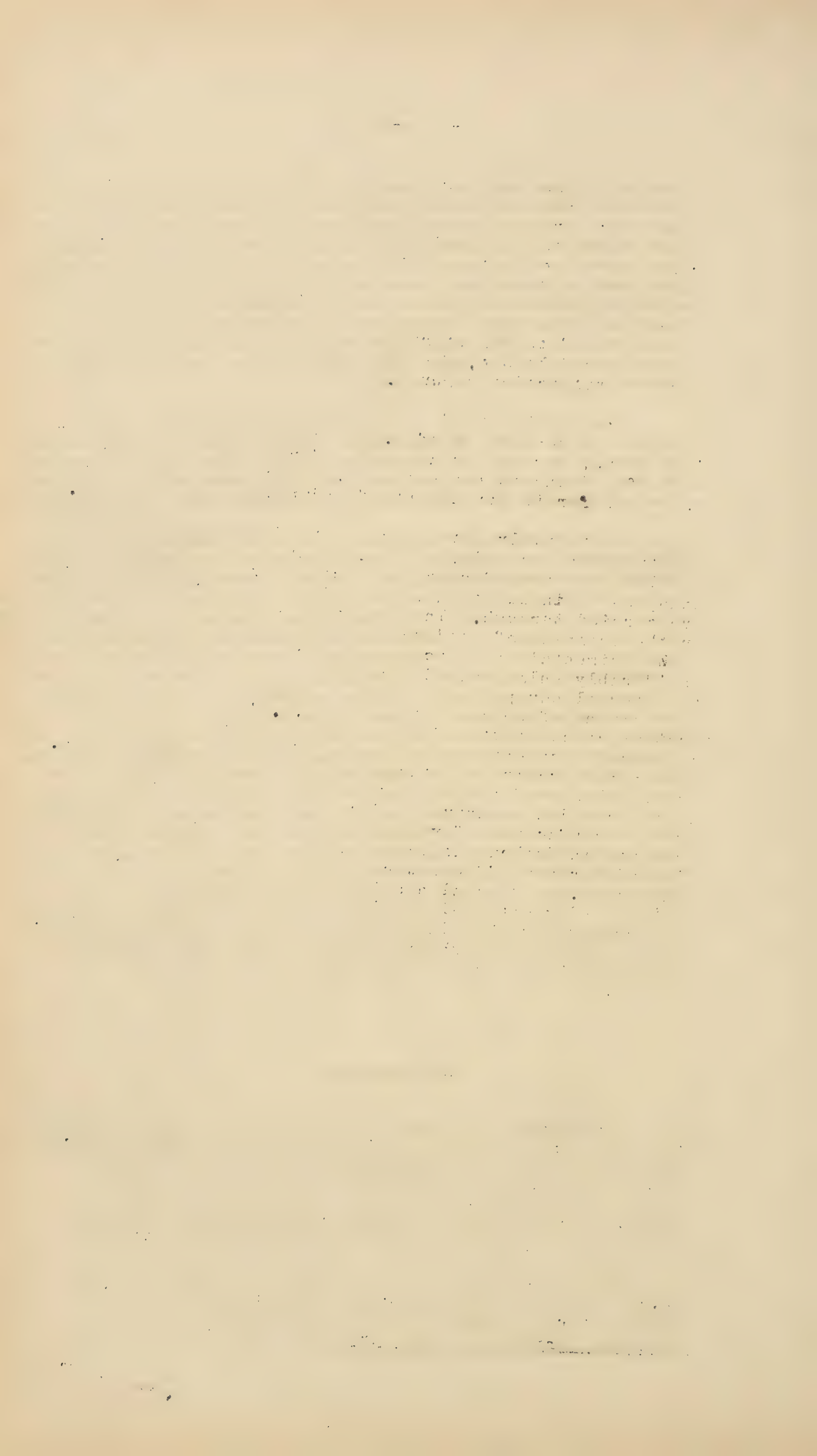
The establishment of the consultant specialists proved to be very successful. They solved a large number of problems, were of great profit for the medical service in the field and in the homeland, and rendered enormous advantages for the treatment of injured and sick people.

The war involved the necessity of establishing new institutes and schools. In St. Johann a mountain medical school was founded for the medical service in the mountains, where in addition to training, scientific researches were carried through. In Bordeaux a school was established for the training of medical personnel in tropical diseases. The Experimental and Educational Section in Berlin was considerably enlarged. Its task was to test the personal and material equipment of the medical establishments, the training of specialists among N.C.O.'s and men and the first practical test of all newly introduced medical and economic instruments and vehicles of the medical service. The Central Archive and the Main Ledger for Sick Reports was established for the evaluation of sick reports of the field and home army and for the sickness statistics. For the manufacture of vaccine against typhus, the Institute in Krakau was taken over and considerably enlarged. Branch Offices were established in Lemberg and Czenstochau. A special hospital with physiological, chemical and roentgenological laboratories was established in Brussels for the elaboration of war surgical problems. These special establishments were under the immediate command of the Medical Inspector.

#### b) The Navy

Concerning the Navy, the war involved the necessity of tasks to be performed partly on land, partly on sea. Many ships were commissioned, among others hospital ships had to be converted, problems of transport had to be solved; the change from submarine warfare to cruiser warfare with a longer cruise for the boats resulted in new and unaccustomed tasks for the Navy.

The top organization changed only a little. The Chief Surgeon of the Navy was attached to the Staff of the Chief of Naval Operations in Berlin. The Medical Department of the Navy was part of the General



Naval Office. Its personnel had to be augmented according to the increased tasks. As in the Medical Inspectorate of the Army, the Medical Department of the Navy had a personnel department, a scientific department, a department for organization and a pharmaceutical chemical department. A central procurement office for the supply of the medical equipment was established. Consulting specialists were attached to the Chief Surgeon, who gave them orders for scientific research in the same manner as in the Army. The consulting specialists regularly visited the offices of the medical service of the Navy, gave lectures and directives for treatment and scientific research.

The newly established Naval Medical Academy in Tuebingen, whose construction and organization corresponded to that of the Army, and which was only smaller, was under the direct command of the Chief Surgeon of the Navy. Attached to this Academy were the Research Institutes with central tasks. The Chief Surgeon of the Navy established separate research institutes, departments and laboratories for the special tasks of the Navy, which received their instructions for research directly from him. An Experimental and Educational Department, like the one the Army had, was under his command too.

Subordinate to the Chief Surgeon of the Navy was the Fleet Surgeon as the medical advisor and representative with the Staff of the Command of the Fleet. He was stationed in Kiel. Subordinate to him were the commanding medical officers with the fleet units and subordinate to those the surgeons aboard ships.

On land, the Naval District Surgeons remained in their former positions and with the same tasks as before. Their area of duty was considerably enlarged, because the number of Navy hospitals had been increased and numerous reserve hospitals of the Navy had been added. Coast defense formations and especially the training formations had been increased in numbers and new ones had been established. Because of this, the staff of the Naval Base Surgeons had been increased by a corresponding number of departments: for personnel matters, hygiene, organization, medical expert opinion and statistics, pharmaceutical matters.

A commanding medical officer was detailed with the education and training inspection of the Navy. His task was the elaboration of all medical questions concerning drafting, selection and training for special duties and officers careers with the Navy. He was immediately subordinate to the Chief Surgeon.

The task of the Navy in the occupied territories consisted of coast defense and in the organization of transport, for instance to the Scandinavian countries, to Africa and so on. For this tasks Navy Group Commands were established, which were the superior offices for larger areas, for instance Italy, Balkans and so on.





Subordinate to them were naval commanders for subsections as for instance the Black Sea, Aegean. Subordinate to these subsections were naval commanders of local districts of ports, of staffs of transport, coastal naval artillery staffs. Commanding medical officers were attached to all these staffs. Subordinate to Naval Group Surgeons were consultant specialists with laboratories, who were assigned to the various sub sections. Naval medical depots which were responsible for the procurement supplies were attached to each zone according to its size.

Enlarged troop sick bays, hospitals, and stations for convalescence and sanatoriums were made available for the care of troops on land. Possibilities for relaxation were provided especially for sailors with strenuous sea-service.

The official channels of the Navy were entirely separated from the ones of the Army, the Navy recruited its personnel separately, supplied the medical materials in own management and had its own hospitals and scientific laboratories in the inland and abroad.

### c) The Air-Force

The same held true for the Air Force. The Medical Inspectorate of the Air Force was incorporated within the compass of the other inspectorates of the Air Force as Inspectorate 14 and together with them was part of the Luftwaffenwehramt (Air Defense Office) which was headed by the Inspector General. For the Medical Inspector of the Air Force this meant one additional office to reach the highest authority. The Luftwaffenwehramt (Air Defense Office) was a part of the Air Ministry. Its top authority was a representative of GOERING, who himself was in the field together with the Chief of the General Staff of the Air Force. No commanding medical officer was with these organizations. The matters accumulating there were elaborated by the Chief Surgeon of the Air Force. An older medical officer was at his disposal who made field trips to the front lines and reported to him everything worth knowing.

Subordinate to the Chief Surgeon of the Air Force, were the Surgeons of the Air Fleets and Surgeons of the Air Force Districts. In addition to this, the Medical Academy of the Air Force and the Research Institute of the Air Force with all its branches, the medical test-stations a group of consultant specialists and a separate scientific senate were under his command.

The Air Force Districts were in command of the entire ground personnel of the Air Force. Therefore new Air Force Districts were formed in the occupied territories in addition to the already existing peace time Districts in the homeland, which remained in their former limits. The Surgeons of the Air Force Districts





were in command of all the medical personnel of the ground organizations, air bases and post commands of the Air Force, the Air Force hospitals and reserve hospitals, convalescent hospitals and sanatoriums of their area of duty. The medical personnel of the civilian air raid medical service were also under their command.

The Air Fleet commands were the superior offices of the flying units. Under their command were the aviation divisions and corps and the special flying formations. Air Force Liaison Officers were detached to the staffs of the Army, which forwarded the requests of the Army to the competent offices of the Air Force, furthermore they had to take care of the courier planes and their crew which operated with the staffs of the Army. There were 6 Air Fleet commands and one Air Fleet "Reich" all the flying units operating in the homeland were under their command.

During the course of the war, the anti-aircraft units were combined in anti-aircraft divisions and corps. Depending on their tasks, they were subordinate to either the Air Fleet Commands or the Air Force Administrative Areas, sometimes they were detailed to army units for offensive employment. The highest authority in the homeland was the Chief of the Air Defense. If anti aircraft units were detailed with the Army, they were subordinate to Army Authorities only as regards tactical employment, the nearest Air Force units were their superiors as far as personnel and material was concerned.

Toward the end of the war, Air Force personnel and units were trained for ground combat. Air Force field divisions and corps were established, which were tactically subordinate to army units, in every other regard they were under the command of the Air Force offices.

All these units had their own medical establishments and their own supply of medical materials from the medical depots of the Air Force. Commanding medical officers were attached to all staffs but they were not subordinate to the units of the Army with which their units served tactically. They were under the command of Air Force offices respectively under the immediate command of the High Command of the Air Force.

In 1944, the top organizations were changed in such a way, that the Chief Surgeon of the Air Force was incorporated in the Staff of the General Quartermaster with the high command of the Air Force. The General Quartermaster in turn was subordinate to the Chief of the General Staff of the Air Force. The Surgeons of the Air Districts in the homeland were subordinated to the Surgeon of the Air Fleet "Reich". A representative of the Chief Surgeon of the Air Force was detached to the Central Research and Testing Station of the Air Force. The majority of the Research and Testing Stations of the Air Force, for instance at Rechlin, had medical departments. They received their instructions from the Chief Surgeon of the Air Force. Medical scientific



research stations of the Air Force were established in a large number of universities, which were partly subordinate to the Surgeon of the Air Fleet "Reich", partly to the Surgeons of the Air Force District. The group of the consultant specialists with the Chief Surgeon was attached to the Medical Academy of the Air Force, the remaining consultant specialists served with the staffs of the Surgeons of the Air Fleets and Air Force Districts.

d) The Waffen-SS  
(Combat-SS)

The Combat-SS Guard had divisions and corps in the field, but only toward the end of the war did they have Army Staffs as well. Medical units were part of the corps and divisions.

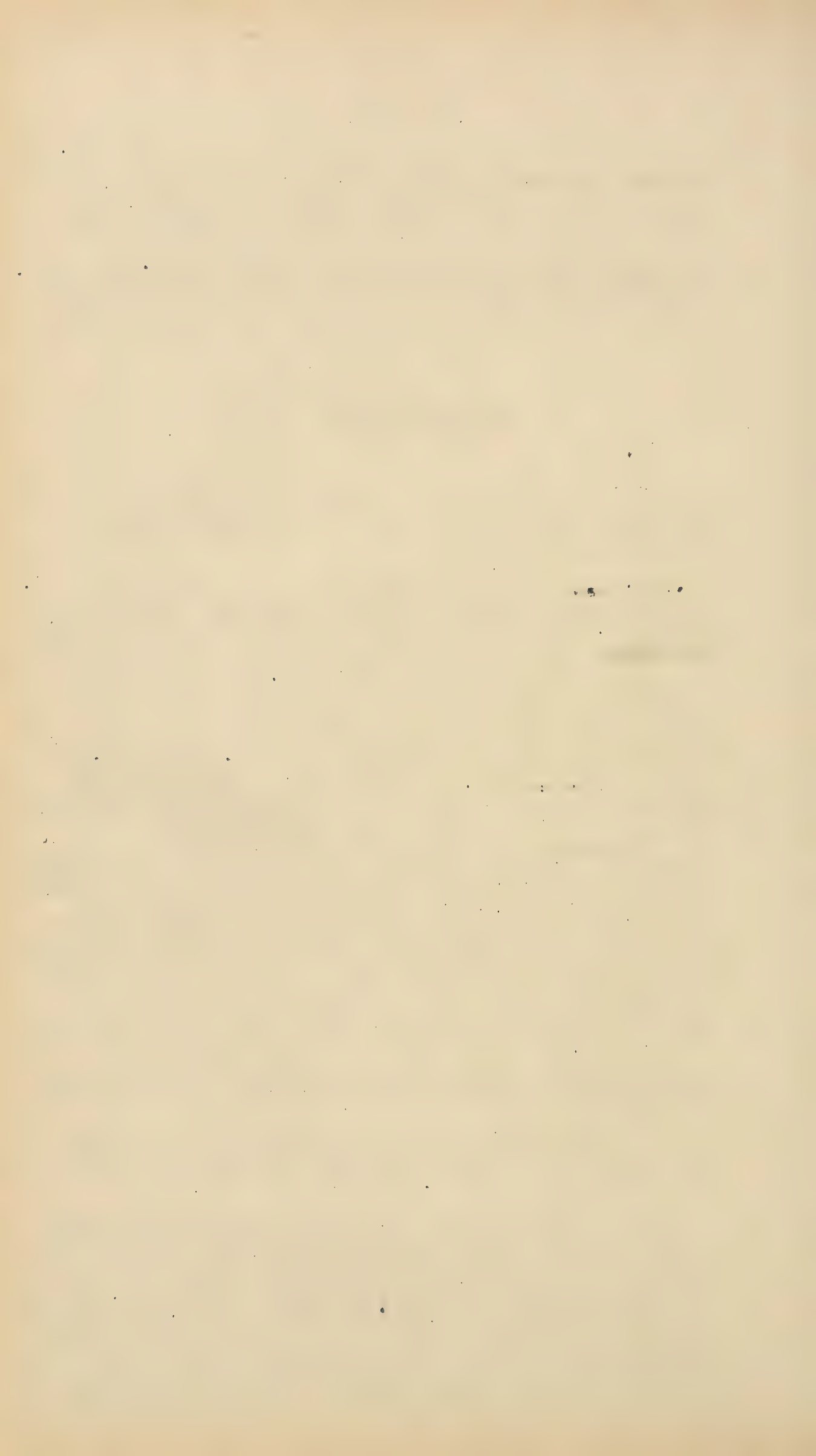
The Surgeons of the SS-Corps were subordinate to the Main Medical Office (Sanitäts Hauptamt), which was the medical department of the military operation command (Mil. Op. Führgs. Amt der SS). This medical department consisted of a department for hygiene with subordinate field laboratories, schools for disinfection, a department for organization of the medical service with the troops, a pharmaceutical and dental department. Also under their command were the SS-hospitals in the field, but only if they were not subordinate to the divisions and corps. With regard to medical and specialists problems this department cooperated with the office of the Reichsarzt National Medical Director of the SS. The office of the Reichsarzt of the SS consisted of a personnel department, a surgical and hygienic department, the Chief Adjutant's Office, medical quartermaster department, dental and statistical department. Subordinate to the medical quartermaster department were the central medical depot, the department for hygiene and several hygienic institutes and an institute for typhus. The Office was part of the SS-Führungshauptamt. (Chief office of operations of the SS). The Reichsarzt of the SS was superior to the Medical Academy of the SS, which was moved to Graz during the war.

The position, the personnel and disciplinary conditions of the SS-surgeons did not change as compared with peace-times.

In addition to the medical service of the Combat-SS, the Reichsarzt of the SS commanded the medical service of the General SS.

The police had their own Police Surgeons, commanding medical officers were detailed to the higher officers of the police, the highest medical officer of the police was located in the Ministry of the Interior at Berlin, his working staff was a medical department. As regards medical establishments, the police had smaller and larger dispensaries and smaller local hospitals in the field. They received their medical supplies from the Army. There were a few police hospitals in the homeland, the largest





one was the central police hospital in Berlin.

e) Labor Service, Organization TODT and other Units.

The Organization TODT had Chief Medical Officers for larger areas of the occupied territories, additional surgeons were assigned to each battalion and company. A chief physician was with the Central Office in Berlin. The field units had established their own dispensaries and hospitals, stations for dental treatment and so on. The Organization TODT had its own channels for medical supply and procurement of medical supplies.

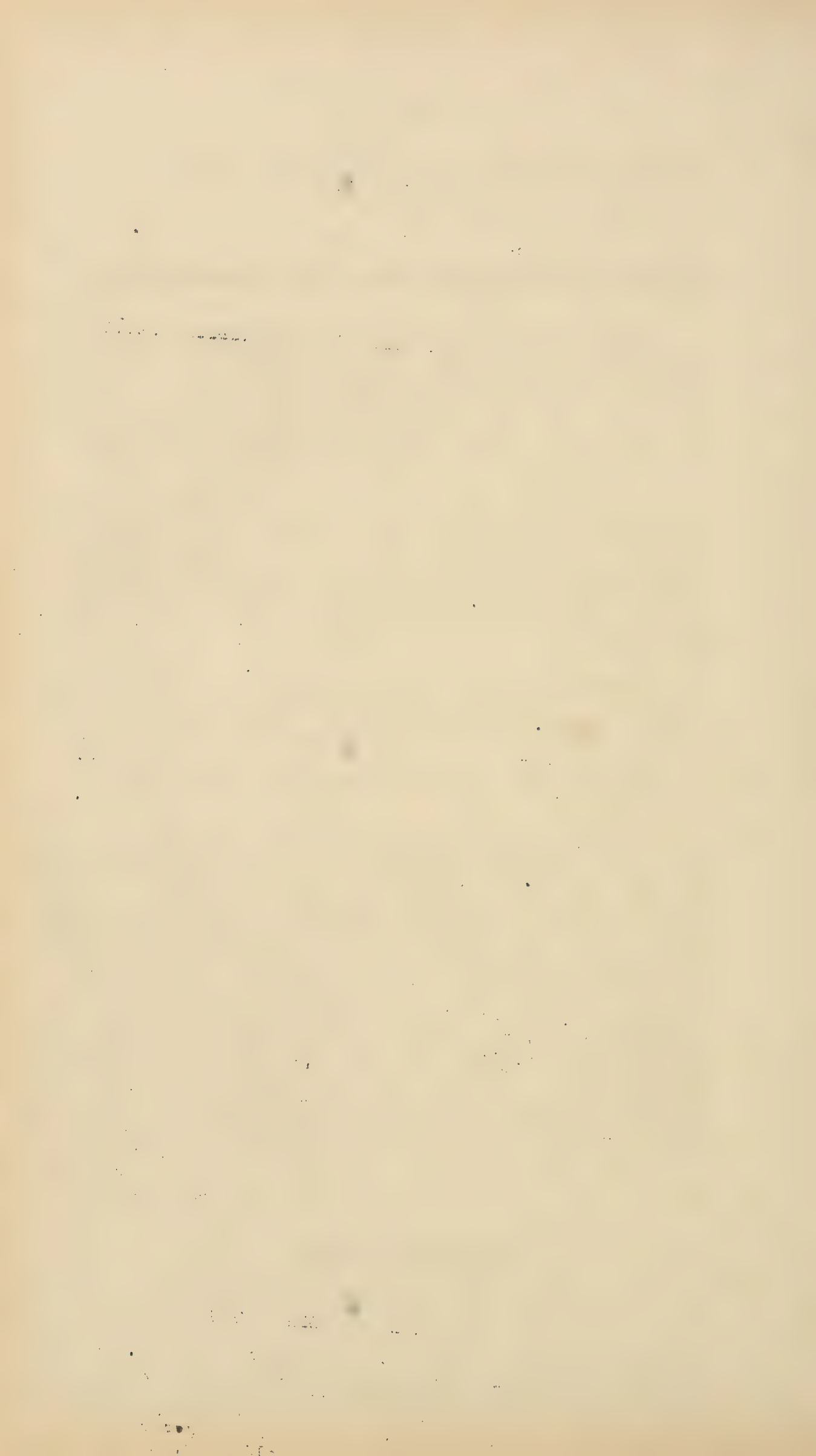
The units of the Labor Service had their own medical officers, but they did not have their own hospitals. Commanding med. officers were attached to the superior staff, the highest authority was the Reichsarbeitsarzt (National Labor Physician) with the Reichsarbeitsfuhrer (National Labor Director). Medical equipment was procured and distributed within their own official channels.

The railroad had its own physicians for its employees and train personnel in the occupied territories. Leading physicians were with the railroad management, a central medical station was with the Ministry in Berlin. The railroad had smaller and larger dispensaries and its own channels for supply and procurement of medical supplies.

There was only a very loose cooperation between all these commanding medical officers and physicians. The cooperation was closest between Army, Air Force and Navy and with the combat-SS if they were employed in combat with the units. With the physicians of the Organization TODT, the Labor Service and the railroad, however, there was only an occasional contact, and in most cases only when they needed the support of the Army authorities. Because of their largely extended territories of employment they were in most cases not able to supply their area of duty themselves, this resulted in the units having to depend on the supply of the army surgeon stationed next to their location. There was also only a very loose contact with the medical service of the civilian sector; in emergencies it was generally the task of the Army to assist with personnel and material.

f) The Armed Forces

When Adolf HITLER discharged the Commander in Chief of the Army after the first Winter in Russia in 1941, he in addition to the Supreme Command of the Armed Forces seized the Supreme Command of the Army itself. Therefore, the Medical Inspector could no longer report to the highest authority of the Field Army, and he thus became more dependent on the military offices of the German





High Command. For the Army, the Chief of the General Staff and the General Quartermaster were now the important office, with regard to general questions concerning personnel the Chief Adjutant of the Führer, General SCHMUNDT, was the decisive man, who in personal union had become Chief of the Personnel Office of the Army at the same time. In questions concerning the Armed Forces, the Chief of the Office of the Armed Forces, Field Marshal KEITFL was the highest authority for reporting. The top organization had become more complicated, many headed and decentralized than ever.

The longer the war lasted and the more scarce the reserves of human beings and material had become, the more grotesque became the co-existence of the various parts of the Armed Forces and Organizations. It was realized that it could not be tolerated any longer, that every organization had its own medical establishments, procurement offices and official channels. Therefore, the Medical Inspector of the Army, being the senior officer was asked to make an adjustment. But this could become effective in practice only if the other medical inspectors willingly agreed. But if in case of rare items the interest of one part of the Armed Forces was in conflict with another, or the interest of the Armed Forces was against the civilian sector, then the personal influence of the Commander in Chief of the particular branch of the Armed Forces or of the civilian Minister was decisive. In rare cases only was the Army the favorite.

When it became evident that matters could not go on anymore in this way, the position of the Medical Inspector of the Armed Forces was created, which position was taken over by the Medical Inspector of the Army in personal union. His working staff remained the Medical Inspectorate of the Army, as his own staff he only received one Chief of Staff who was detailed from the Air Force and a representative who belonged to the Navy. He had no special authorities, and very soon it became clear, that this solution was only a very insufficient one.

An Armed Forces Medical Inspectorate was established on 1 September 1944. It had the same subdivisions as the Army Medical Inspectorate, and the offices were held by medical officers of the Army, Navy and Air Force proportionally. The Combat-SS, Organization TODT and the Labor Service, assigned physicians of their organizations as Liaison officers to the Armed Forces Medical Inspectorate for consultation in all questions concerning their organization. A new Army Medical Inspector was appointed for the Army Medical Inspectorate who as previously, also held the office of the Chief Medical Officer of an Army. The staff of the Army Medical Inspectorate and of the Chief Medical Officer of the Army remained unchanged as regards their strength and positions,



The mission and authority of the Army Medical Inspector were determined in an Army Manual. This Army Manual represented a considerable progress in comparison to the former status. Unfortunately, however, it contained many flexible terms. By inserting foot-notes, remarks and limiting subordinate sentences the various branches of the Armed Forces had left many possibilities open in every respect so that more or less it depended on their good will whether or not they wanted to obey the instructions issued by the Army Medical Inspector. Thus for instance it was arranged clearly that the different branches of the Armed Forces were independent in their special fields of work and missions. The Army Medical Inspector for this reason was not informed about the research programs of the various branches of the Armed Forces in their special fields. If one branch of the Armed Forces did not comply with the instructions issued by the Army Medical Inspector, he, as he could not report to HITLER himself could only apply to Field Marshal KEITEL. But it was known that the latter one had not too much authority. Thus a superior office that not only could make decisions but also had the authority to carry them out was missing. Therefore, everything depended in the last on an amicable agreement. Thus the greater part of the authority of the Armed Forces Medical Inspector was more on paper than in reality.

In two fields only did he succeed in gaining tangible results: in the fields of material distribution and limited assignment of personnel. The efforts of the SS, to obtain the best replacement for themselves could be avoided, and it was possible to obtain an agreement with the National Medical Director-SS to settle the demands of the civilian sector and of the Armed Forces, thus eliminating the contrary complaints. The claims of the Party, as already mentioned before, could be eliminated successfully as regards the training of the medical students in the student companies. The Medical Inspector of the Armed Forces furthermore was successful in having all stocks of available medical materials reported to him. He finally had the possibility to distribute the rare items in proportion to the most urgent requirements of the various branches of the Armed Forces. The conditions were still quite unsatisfactory in the field of research. The Medical Inspector of the Armed Forces was not informed about the essential parts of research done by the various branches of the Armed Forces and especially by the Combat-SS and the civilian sector. The various branches of the Armed Forces referred to the regulations, asserting themselves to be independent as regards research work important for their interests. An agreement between the various Chiefs of the Medical Service did also not lead to any progress. Thus for instance the Institute for typhus of the Army and the one of the SS worked side by side without any close contact. The Medical Inspector of the Armed Forces learned belatedly or by chance of many tasks, that had already been performed. In this regard his influence should have been strengthened considerably. The Medical





Inspector of the Armed Forces did not have direct authority to issue orders concerning the course of the medical service in the various branches of the Armed Forces. He could only adjust the distribution of the ill people to the various hospitals in the homeland, could give stimulations and recommendations to the Chief Surgeons, but he could not directly issue orders.

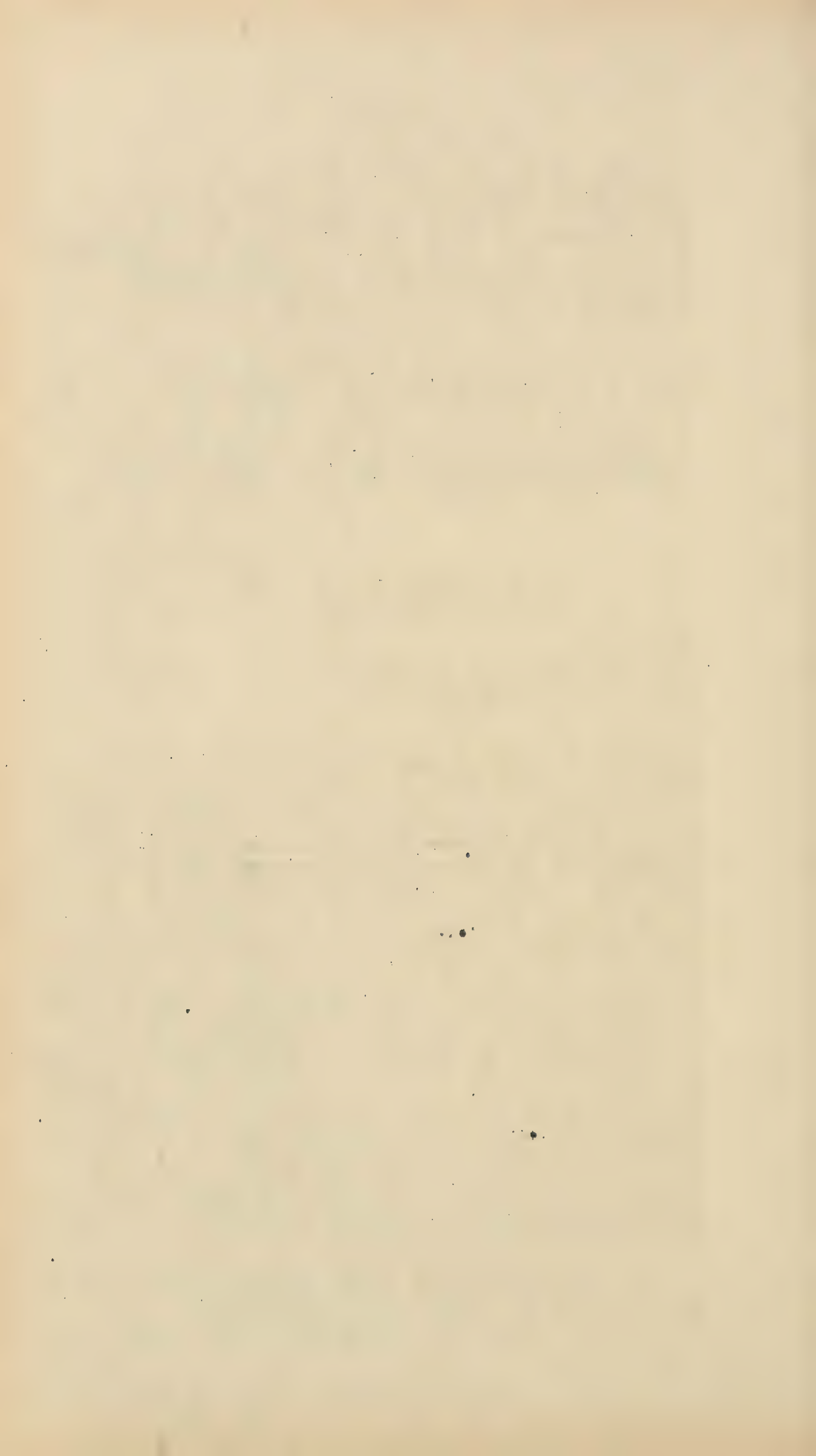
Under the immediate supervision of the Armed Forces Medical Inspector was the Institute for Microbiology located at the Sachsenburg. This Institute was supposed to serve for the training of physicians and for the manufacture of serums and vaccines. The training was supposed to be concerned only with infectious diseases, their origin, diagnosis and prophylaxis. The Institute was founded during the year of 1944.

g) Reichskommissar  
(Reichs-Commissioner)

During the year of 1944 the position of the Reichskommissar für das Gesundheitswesen (National commissioner for Public Health) was established.

When the bomb attacks on German cities began to be extensive catastrophies for the German civilian population, the necessity arose, to combine all medical establishments of the civilian sector in such a way, that they could work together smoothly in case these tremendous catastrophies arose. The hospitals belonging to the state, the universities, communal and charity organizations and the medical establishments of the Party and especially of the Red Cross had to be directed by one person and by one uniform management in case of catastrophies. The Armed Forces with their establishments for transport and hospitals helped out in the beginning, but with the increasing losses of the civilian population they could not accomplish this task any longer unassisted. In addition to this, so called displacement hospitals and makeshift possibilities for operations had to be established and constructed according to uniform plans, to replace the destroyed and endangered hospitals. Transportation, which in the main part was furnished by the Red Cross could not be dispatched anymore by the various organizations, but had to be dispatched according to plans by one office. Furthermore, the means were becoming more scarce just as with the Armed Forces and this made it necessary that all avoidable double performances in research and all double procurement had to be eliminated.

It was the main-task of the National Commissioner to achieve this unity and to settle all matters. He had the authority to contact all medical offices of the Armed Forces, of the civilian ministries and other officia





authorities, of the Party organizations and the Red Cross, to pay attention to their desires, act as intermediary in their matters and to put them on a level as concerned uniform performances and uniform directives. Generally speaking, he did not have the authority to issue orders, but only authority to direct and advise; the latter one only inasmuch as medical questions were concerned. Instructions and orders given by ministries, government authorities, Branches of the Armed Forces and so on to the respective medical service in their area of duty, had precedence over his suggestions. The National Commissioner had 2 offices under his own authority; The Office of Planning and Distribution of medical Instruments and of medical articles for attendance on patients, and the Department for Scientific research and Examinations.

Very soon a remarkable progress could be observed in the field of protection against catastrophies and as regards personnel and material fields. The results in the field of research on the other hand were less remarkable. The National Commissioner had in addition to his own department the Reichsforschungsrat (Research-Council of the Reich) at his disposal. This was the former Kaiser Wilhelm Research Society, which soon after the beginning of the era of the 3rd Reich had been reorganized. Although numerous offices were theoretically put into action in order to regulate the researches, practise showed, that many research programs were carried through side by side, and that others were under way of which the superior offices did not have any knowledge.

The Office of the National Commissioner was important for the Armed Forces, because occasionally he was able to contact the highest authority and there discuss the requests of the medical profession. He succeeded in arranging for a final and binding solution between the Armed Forces and the civilian sector regarding requirements and demands. The time wasting and often fruitless discussions could now be eliminated, because the National Commissioner represented the highest authority that could equalize and made decisions in this field.

However, all these central offices had been created too late. All the various branches of the Armed Forces the civilian government authorities and other offices had gained independence in the meantime, they had established their own institutes and research institutes and only reluctantly and hesitantly did they agree to give up some of it. Besides this, the general military situation of the time, when the new central offices were established, was already so difficult, that a new organization could not take proper effect anymore. The conceptions which led to their establishment were right. With more favorable external conditions and with a longer existence the inadequacies and gaps could have been improved and leveled.



## 2. Medical Establishments and course of the Medical Service during the War.

### I. Army.

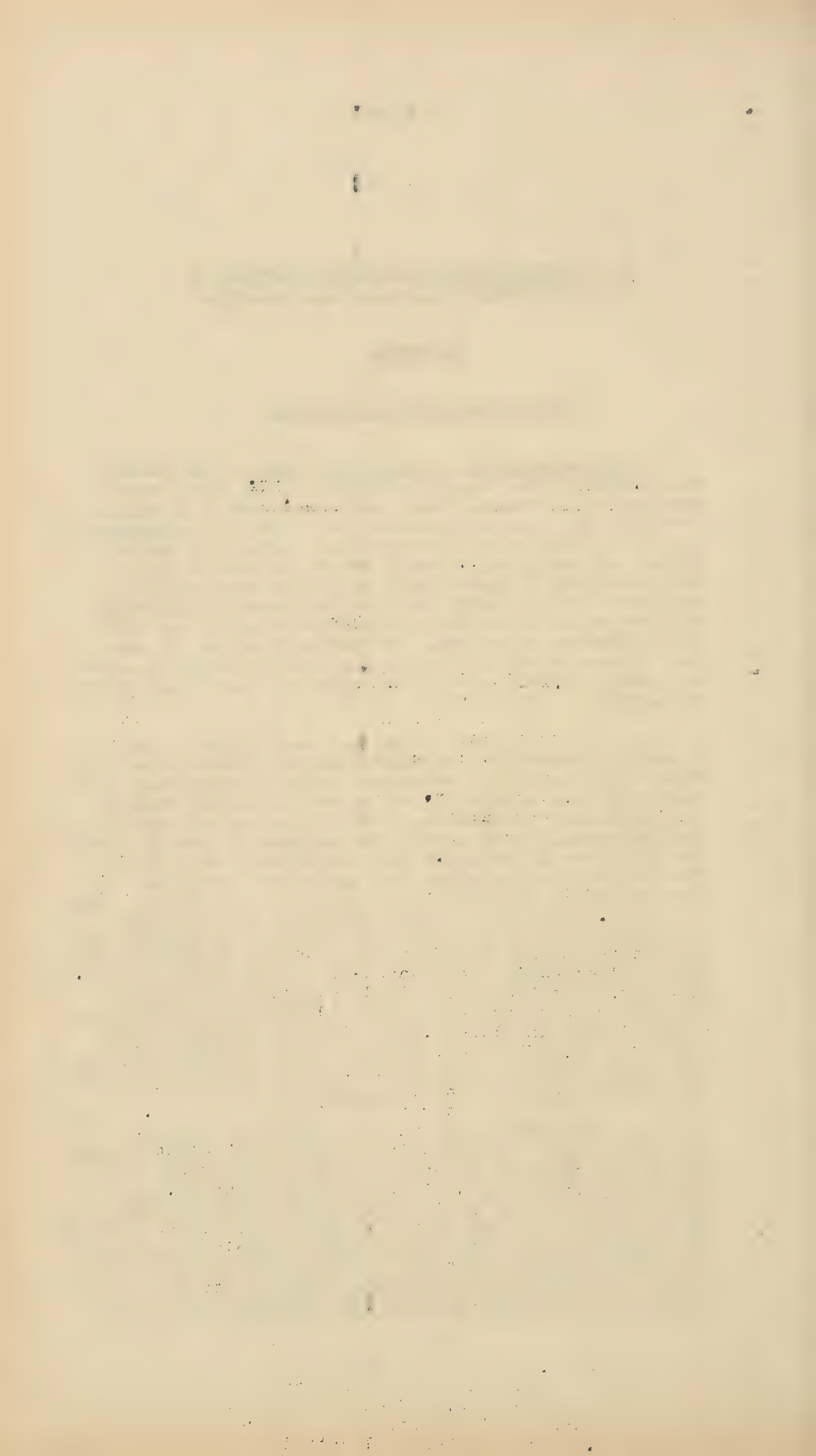
#### a) Medical Establishments.

Troop-physician in the Field Army. The medical equipment of the troop physician in the field army was packed in wooden boxes and consisted of 1 combat box with the necessities for the first aid treatment on the battle field, 1 wooden box containing medicines and bandages, 1 small box containing sera and vaccines, 1 canvas roll of splint material, 1 small set of surgical instruments, boxes filled with reserve supplies of bandage materials and a set of sterilization equipment. In addition he had a number of stretchers at his disposal which could be conveniently folded together in order to facilitate their transport.

At the beginning of the war each division had 2 medical companies, one horse-drawn and one motorized. Tank divisions had 3 motorized medical companies; the surgeons were separately organized in mobile groups equipped with ambulances, in which operations could be performed. This served the purpose of moving them to the place of greatest need as quickly as possible. The medical companies of the mountain divisions were larger, their equipment was transported by mules. They were subdivided into several platoons and had such equipment that it was possible to assign 1 platoon of a medical company to those groups of the division which frequently fought as smaller independent units. Part of those medical companies was a so-called "valley-platoon" the mission of which was the establishment of a main dressing station and which was equipped with vehicles. "Roping-down" equipment and special means of transportation for mountains, such as stretchers mounted on wheels completed the equipment.

The Army Corps did not have their own medical establishments. Subordinated to the Army Corps Surgeon was 1 Army Medical Battalion which consisted of 2 Army Medical Companies, 6 field hospitals, 6 ambulance platoons and in addition there were 2 War Hospital Battalions. Each War Hospital Battalion consisted of 2 war hospitals for mild and serious cases, 2 evacuation battalions, each consisting of 3 companies, with 3 platoons per company, 1 Army Medical Supply Depot with 2 platoons, 1 large chemical and hygienic laboratory.






All medical units were motorized with the exception of the evacuation battalion. The latter unit depended on transportation by rail or by other units. The medical supply depot had its own transportation squad with tractors. The number of units assigned could vary according to the strength and mission of the Army. Assignments could only be ordered by the M.O. of the High Command of the German Army. The Army-groups had the same equipment as the Armies, however, the number of units was frequently larger as they were in charge of bigger areas. Frequently it was their mission to take care of the wounded and sick soldiers of 3 to 4 armies and of the numerous units of the rear areas. In general they had fewer field hospitals but as an equivalent they had a larger number of war hospital battalions. In addition smaller medical supply depots were subordinated to them, the so called "Medical Sub-Depots".

The Army High Command did not dispose of an actual reserve of medical units but these units were ordered from quiet fronts to the fronts where they were needed more urgently. It happened only during the beginning of the war and even then only shortly before offensives, that medical establishments were idle in reserve.

The hospital trains which will be discussed later on, were subordinated directly to the Army High Command and therefore to the Medical Officer of the Army.

The offices of the Commanding Generals of the Armed Forces (Dienststellen der Wehrmachtsbefehlshaber), of the Branch Offices of the General Quartermaster and of the Military Headquarters of Occupied Territories (Gouvernements) were in charge of war hospital battalions and evacuation battalions which were less mobile and which were somewhat similar to the reserve hospitals in the homeland.

In the homeland the former military hospitals and a number of civilian hospitals, schools, public buildings and so on were changed into reserve hospitals. They were stationary and were equipped with personnel and material according to their size and purpose. As far as possible they were subdivided into special hospitals and special wards. All auxiliary means of modern hospital treatment and above all, all means of restoration surgery and of subsequent treatment were used. Soldiers were taken care of in spas, recreation centers and in convalescent hospitals after the actual hospital treatment. Training schools and workshops were attached to the hospitals or worked closely together with them and training courses and lectures were held in order to give those wounded soldiers who could not resume their former profession a chance for training in a new professional activity or to give those patients who were bound to spend a long time in bed some kind of stimulation and to keep their educational status up to date. Thus it was possible to continue an interrupted study







at a university or a school. Particular care was taken of blind, amputated or crippled soldiers.

Self confidence and efficiency of the wounded soldiers was stimulated by gymnastics and sports.

Special departments for observation and expert opinion relieved the stress on the hospitals to a large extent by ambulatory findings.

Within a division the supply of medicine and dressing materials was taken care of by the medical companies and by means of 2 cars for the storage of medical reserve supplies, which were at the disposal of each commanding officer of a division. The divisions supplemented their requirements from the medical supply depots of the Army, which in turn got their replacements from the medical supply depots of the Army Groups or of the homeland. The field medical supply depots could be ordered to distant sections of the front as so called branch supply depots or as a unit. Medical Sub-Depots were assigned to smaller formations but they could only be operated in close cooperation with a larger medical supply depot. In order to facilitate the supply of medical materials to the front lines, the field medical supply depots had a transportation squad assigned to them which consisted of large and partly very heavy trucks. However, transportation generally took place by means of all kinds of vehicles, particularly by hospital trains. With these hospital trains further supplies arrived from the homeland but they were also transported in box-cars attached to regular supply trains.

In accordance with the increased requirements a larger number of medical supply depots of military districts were reorganized and changed into processing departments. The majority of the requirements, however, was secured by purchases from civilian agencies. The Central Procurement and Contracting Office was the main medical supply depot, Berlin, which cooperated closely with the Ordnance Department of the Army. The produced or purchased material was stored in processing departments or medical depots and therefrom was forwarded to the field units. The Armies and Army Groups depended on certain reserve medical supply depots.

#### b) Transportation

At the beginning of the war, each division had two motorized ambulance platoons, each consisting of 15 ambulances. Each ambulance was equipped for either four lying or eight sitting patients. Each medical company had four ambulances. Within motorized units each regiment or other formation of equal size had its



own ambulances. The infantry regiments did not have their own ambulances. Six ambulance platoons were assigned to each medical battalion of the armies or army groups. At the beginning of the war it was possible to assign additional ambulance platoons to the different units: during the beginning of the war, the motorized divisions also had a third ambulance assigned to them.

In the homeland the German Red Cross provided the means of transportation, which in general consisted of the ambulances which were normally operated by them in peace time. In general it can be said that the homeland depended largely on improvised means of transportation for the wounded such as converted buses, street cars or barges.

For the rear areas between the army groups and the homeland transportation was provided according to the requirements and by order of the Army Medical Inspector.

As the usual military vehicles failed on the bad roads in Russia, particularly during the mud and winter periods, half-track ambulances were introduced. They were considerably larger and ten to twelve wounded could be evacuated in each vehicle. The wounded were placed transversely in the vehicle. These cases could be opened and loaded at the side. They proved very useful in the Eastern campaign.

Hospital trains were used for the evacuation of wounded from the front to the homeland. These trains were converted passenger cars. In peace time there were no hospital trains. A hospital train consisted of about 30 cars for patients one car for operations and also had an additional car for the personnel, one car for kitchen, supplies and water, and one car with coal and a heating system in winter time. The hospital trains had their own assigned personnel, 2 physicians, 3 to 4 nurses, medical orderlies and technical personnel. The operation car was provided with all instruments necessary for urgent operations. In general, only emergency cases were treated, such as delayed hemorrhages and so on. In all other cases, the dressings were only changed. If major operations became necessary the patients were hospitalized in the next large hospital where the train passed.

The hospital trains were equipped in such a way that they were independent during their trips, including the food supplies. The supply cars were equipped with a refrigeration system. In addition most of these hospital trains had a small library as well as a radio with loudspeakers in all cars.

As a result of the poor railroad conditions in Russia the hospital trains could not run to the advanced places where required. Thus the wounded accumulated to a threatening extent as a result of the irregular evacuation,





particularly during the first winter campaign. It was impossible to speak of a sufficient or regular railroad-schedule. Supply trains, returning to their place of dispatch with empty cars were thus used as an improvised means for the evacuation of wounded and sick soldiers. It must be pointed out, however, that these trains consisted only of box-cars. In addition these trains had to pick up the subsistence for their passengers at the stations located along their route. Even if previous arrangements had been made and if food had been prepared, it happened very frequently that the meals had become inedible by the time the trains arrived, as they were frequently late. In other cases the trains could not stop and wait until the food had been distributed due to technical difficulties in the management of trains, or it happened that the trains could not stop at all at those stations where food had been provided for but only at the next one, where no previous arrangements had been made. The equipment of these trains and their heating system was either insufficient or not at all available. Unfortunately it was not successful, even later on, to bring the traffic conditions in Russia into such condition that a sufficient traffic of hospital trains would have been guaranteed. Therefore the principle of these improvised hospital trains had to be adhered to, however, their equipment was improved continuously. They were equipped with beds similar to stretchers, sufficient blankets, small stoves, emergency illumination, personnel to attend to the patients, a certain supply of dressing material, medicaments and tinned food. In addition, physicians were assigned to these trains as far as they were available. Physicians who were going on leave or who had to travel to the rear areas for various other reasons, were assigned to these trains. However, the trips of these hospital trains were very irregular and depended on many incidents, first of all on the extent of destruction of railway lines by guerillas and on other inconveniences caused by guerilla warfare. The construction and dismantling of the equipment inside the cars, its and the personnel's return to the front at the point of origin lead to considerable inconveniences. Therefore it was decided to use these trains for regular back and forth trips on one and the same line of the advanced areas and to equip them as stationary trains similar to the hospital trains. During the war very good new constructions were developed for the equipment of box cars, improvised kitchens, supply rooms, small rooms for treatment and so on. Hospital trains of the old kind were only used in a mass-evacuation of wounded or in case of an evacuation of an entire territory. After this phase had been reached, there was sufficient material and personnel available for these trains as well, so that the events of the first winter campaign did not repeat themselves.

For patients with mild diseases there were special trains with passenger carriages with wooden seats for the patients. They did not prove very useful in the East,





however, because even patients with slight diseases could not endure sitting up for several days during these trips covering large distances. Therefore, these trains could be used only for short distance trips.

In addition there was a number of special establishments, which could only be employed at certain places and for certain purposes on special orders of the Army Surgeon. These included motorized surgical groups, motorized laboratories, a laboratory train for research and instruction tasks, special hospitals for patients inflicted with gunshot injuries of the brain, for surgical and internal medicine research work with the necessary special equipment and so on.

#### c) Cooperation of the Medical Establishments.

The establishments were organized in such a way that, the farther to the rear the patient travelled the more detailed and specialized the treatment became. The medical officer of the troops performed all kinds of treatment. He took care of the wounded and the sick, he ordered stretcher bearers to evacuate them from the battle field and supervised the further evacuation to the rear hospitals. Before enemy action he assembled stretcher bearers and the medical personnel of his unit in his first aid station. He did not have his own ambulances, his equipment was taken along by the supply vehicles of his units. All he had for the evacuation of wounded was the folding stretcher mounted on wheels. If a troop physician was with a motorized unit, he had his own car in which in addition to himself his medical corpsmen and the first aid-box for combat use were taken along. At the beginning of the war, the physicians accompanied tank attacks in open sedans, later on in troop transportation tanks. As mentioned before, all motorized units had their own ambulances.

The mission of the medical companies was the first surgical treatment of the wounded. The medical company consisted of one platoon of stretcher bearers, the mission of which was to evacuate the wounded from the battle field to the first aid stations. In addition it had one platoon which had to establish a main dressing station and one additional platoon consisting of specialists such as members of a sanitary squad, craftsmen and so on. The platoon of stretcher bearers could erect a collecting point for slightly wounded soldiers. It was its mission to sort out and treat the mass of slightly wounded soldiers so that they would not overcrowd the main dressing stations where it was necessary to perform





the surgical treatment under quiet conditions. The surgical treatment was the principal mission of the medical companies and for this purpose several surgeons and sufficient surgical personnel was assigned to them. In many cases it proved useful to employ the medical companies separately; the first examination took place in the advanced main-dressing stations, so that the major and time-consuming operations could be performed in the rear dressing station. It was indicated in special directives, which operations should be performed at the main dressing station. The actions of the medical companies were principally limited to the first surgical treatment, all major operations had to be performed at the rear hospitals. The main dressing stations did not have enough space to hospitalize the wounded for a longer period of time. Therefore they had to see that the wounded soon came into a condition in which they could be evacuated, and splint bandages had to be applied in case of fractures due to gunshot injuries.

During an advance or during a retreat, the two medical companies of a division could be employed either in echelons or parallel. Echelon employment was the most favorable one during advances, that means that a medical company operated until the other one was ready to accept patients at the next advanced point, than the rear medical company packed up and moved.

The ambulances of the division served for the evacuation from the first aid stations of the troops to the main dressing stations and from those to the rear field hospitals.

The field hospitals were subordinated to the armies, however, during offensives they were frequently subordinated to the corps surgeons who had to order them to the places of greatest need in due time. This could not be recognized by the armies as quick as by the corps surgeons. If the army corps advanced the field hospital remained wherever it was and the army surgeon ordered a new one to the corps surgeon. In the field hospitals the wounded and sick soldiers received their first hospital treatment. The field hospitals were equipped with sufficient material and personnel to make 200 beds available. But in times of an accumulation of wounded, 2 to 3 times as many patients were hospitalized. In principal these hospitals had one department for surgical treatment, and one for internal medicine; some of them also had wards for various other special treatment. In general the wards for special treatment were established according to the principle that all sorts of them were included in the total of 6 field hospitals of a medical battalion. During the assignment of field hospitals to the various places, special consideration was given to their wards for special treatments in order to facilitate an equal distribution of all special wards over the entire area of the Army.



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1. The first group of people who are interested in the study of the history of the world are the historians. They are people who are interested in the past and who want to know what happened in the world. They study the past in order to learn from it and to understand the present. They write books and articles about the past and they teach in schools and universities.

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No internal medical conditions were treated at the main dressing stations. Their treatment was left to the field hospitals. Only in times of an accumulation of cases of minor diseases such as colds, gastro-intestinal diseases and so on, were the collecting points for slightly wounded soldiers changed into sick bays for patients with minor diseases and equipped accordingly.

While the medical companies had tents at their disposal for the establishment of surgical wards and holding wards for patients awaiting evacuation, the field hospital depended on regular buildings. Tents or barracks could only be assigned to them from the stocks of the medical supply depots.

The collecting stations for wounded and sick soldiers consisting of one company of the evacuation battalion were employed in the front areas in the same number as the field hospitals. They had two principal missions: On the one hand, they established large collecting stations in which the patients coming from the collecting points for sick and wounded soldiers with minor diseases received their further treatment. As mentioned before these collecting stations were established by the medical companies. There the out-patients received their final treatment. These collecting stations had to keep cases of minor importance away from the hospitals and to send these patients back to the troops as soon as possible. This was also done to relieve the pressure on the transportation system. The patients were released either to their units at the front or to convalescent companies. In addition all out-patients requiring special treatment were admitted to these collecting stations.

The evacuation battalions did not have their own means of transportation. Therefore, they depended on rail transportation and if this was impossible as it frequently happened in the East, their transportation depended on other units.

The second mission of the evacuation battalions and their sub-units was to maintain close contact with the railway authorities and to make the necessary arrangements for the traffic of hospital trains and improvised hospital trains. For this reason they were always stationed at railheads. They received regular reports from the hospitals of their area about the number of patients ready for evacuation in each hospital and requested the necessary trains according to these figures. In addition they were in charge of loading and unloading these trains.

Corresponding to their mission and their size the collecting stations had 2-3 physicians assigned to them. Due to the extended front lines, however, the number of collecting stations to be established increased to such an extent, that in most cases only 1 physician could be assigned to each collecting





station. In some cases specialists were assigned to these stations so that surgical treatment of a smaller degree and treatment of skin-diseases could be performed and dental patients could be attended.

The war hospitals were the places where the bulk of the patients requiring careful and prolonged treatment was admitted. They had specialists of all fields. The staff of the war hospital battalion directed all 4 war hospitals subordinated to them. In the war hospitals for patients with minor complaints there were 1000 beds, in those for patients with major complaints there were 250 beds. During the war this difference between the two hospitals became less and less evident. Most of the patients with minor complaints were admitted in the collecting stations. In general 1000 patients could be hospitalized in a war hospital, but frequently twice as many had to be admitted. The strength authorization of these hospitals covered only a small number of the personnel. On the other hand a large number of the so-called personnel reserve was at the disposal of the staff of the battalion. This personnel reserve included all specialists and their medical personnel, and they could be assigned to one or the other war hospital according to the requirements. Frequently local and space conditions were decisive. The assignment could be changed with every new employment of the hospital. The surgeons were organized in mobile surgical groups and could be assigned to other formations as well, to main dressing stations or as a relief for exhausted surgeons of other hospitals.

While the medical companies were equipped for the purpose of short and varying employment, the field hospitals and especially the war hospitals were moved as seldom as possible, as otherwise the treatment of hospitalized patients would have been interrupted too frequently. Even in times of a rapidly progressing offensive, the field hospitals generally moved about once a month, war hospitals remained at their location for at least 3 months. As far as the military situation permitted, it was attempted to establish special hospitals or hospital wards for treatment of gunshot injuries of the brain, lungs, abdomen and the extremities, for infectious diseases, and for internal diseases of a minor and major degree.

For the treatment of dental patients the medical companies had dentists and dental technicians assigned to them, in order to guarantee a continuous dental treatment and the supply of dental prostheses. Their equipment was packed in boxes which could later on be used as tables for the instruments. Thus the dentists were in a position to establish small dental wards distant from their units and in billets of the troops or in homes for convalescent patients or for soldiers going on or returning from leave. The dental officers of the medical companies also had to give the first special treatment to soldiers suffering from injuries of the jaws. This was principally the application of splints for the





evacuation period. The field hospitals also had 1 dentist each assigned to them while the dental wards of the war hospitals could have 6 dentists according to their strength authorization. At several locations in the area of an army and of an army group large wards for dental treatment were established and all dentists with special training were assigned to them. For the frequently very difficult treatment they had their own personnel with special training and their own diet kitchen. The number of dentists available was such that dental stations could be equally distributed over all important points of the front and the rear areas. Laboratories were established in the field hospitals for clinical examinations. Larger ones were with the war hospitals and there specimen received by mail from the various units could be examined. Medical battalions had clinical laboratories for the consultant hygienists. These were small, transportable clinical institutes for all the usual examinations, which could also be made in case of epidemics and for scientific and research purposes. The war hospitals had their own small clinical hospitals.

Chemical laboratories which were first of all for the chemical control of food were under the supervision of the pharmacists of the corps surgeons and with the field and war hospitals. The pharmacists with the staffs of the medical battalions had large laboratories, suitable for all clinical and research work. In their size and equipment they were similar to the laboratories of the consultant hygienists.

Nurses were only employed with the war hospitals and such formations of the army as were located in the rear areas. The frequently questionable military situations with the advanced formations, the poor billeting conditions and so on prohibited other employment. A chief nurse was assigned with each army physician and army group physician for discussion and consultation of all matters pertaining to the staff of nurses. The head of the nurse corps (Generaloberin) was with the medical inspector. The nurses had no military ranks.

The different medical formations of the field army cooperated in the following manner: at the main dressing stations the patients were given the first surgical treatment they were sorted out and evacuation dressings were applied. In the field hospitals they received their first surgical treatment or were hospitalized in a ward for internal diseases, in addition specialist's treatment was given to them. The war hospitals were the places of the principal treatment during hospitalization such as treatment of all sorts of clinical diseases with all kinds of special instruments. Patients with minor complaints got their primary treatment at the collection point for patients with minor diseases, later on at the collection stations and hospital wards for patients with minor diseases and in the convalescent companies. The medical treatment was subdivided into several phases and was gradually performed by the establishments of the armies, the army groups, the





branch offices of the Army High Command, the establishments of the Commanding Generals of the Armed Forces, the Military Headquarters of Occupied Territories, and finally the homeland. The farther the patients came to the rear areas, the more specialized was their treatment.

In the advanced areas evacuation was done by motor cars, after that by improvised hospital trains, which ran only as far as the areas of the armies and army groups, from there patients were evacuated with hospital trains, which were fully equipped for that purpose. The direction of the different transports and the employment of the hospitals in the homeland was up to the Army Medical Inspector and the Army Surgeon, he in turn gave his directions to the army group surgeons and the army surgeons. Depending on the military situation the patients were retained in the advanced medical establishment for a short or a prolonged period of time.

#### d) Issuance of Orders

The orders for the employment of the medical service were issued by the military commanders or at their request by the chiefs of the sections or the Quartermaster. In urgent cases the superior medical officers could issue immediate orders themselves, which had to be approved subsequently by the military commanders. In practice this worked out in such a way that the commanding medical officers were informed in general about the military plans. Then they discussed their plans concerning the employment of the medical service and issued their orders. Corresponding to importance and significance these discussions were held with the military commanders themselves or with the various chiefs of the Quartermaster's Office. The kind and extent of these discussions depended to a large degree on the participating individuals and their relationship to each other. The more and more strict classification of information concerning the actions of the armies was often used as a pretense to either not inform the medical authorities at all, or to do so only very late, and thus attempt to transfer the authority of issuing orders concerning the medical service into the hands of the military officers.

During the last years of the war, the medical service which up to that time was subordinated directly to the commanding medical officers in all problems pertaining to personnel and disciplinary matters, was reorganized and combined with the veterinarian and administrative units into so-called supply units. These new units were given a military commander with a separate staff. As a justification for this reorganization the saving of personnel and material was mentioned. This, however, did not take place. It was practically impossible for the commanding officer, being a layman, as regards all the





problems of the unit subordinated to him, to exercise skillful supervision. This failure was frequently also due to the fact that the units were too far distant from each other so that time and locations did not permit regular visits. This obviously was an erroneous decision, which probably was dictated only as a result of the efforts to deprive the medical officers from their authority. On account of the surprising events of the last months of the war, this planned change hardly came into effect.

#### e) Changes during the course of the War

During the course of the war personnel and material became more and more scarce. Naturally this also had its effect on the medical service, the equipment and strength authorizations of which were changed frequently. Towards the end of the war, the orders concerning saving measures were issued so hastily that they could not be obeyed as a result of the events and they caused a lot of turmoil.

When new formations were established and new front lines erected, it was no longer possible to organize medical formations at the same time. They had to be taken away from other already existing formations. Thus it happened, that towards the end of the war the divisions had only 1 medical company, the infantry divisions only 1 horse-drawn medical company. The armies had only 1 war hospital battalion, 1 evacuation battalion and frequently no longer had the full number of field hospitals. Medical depots were combined as far as possible and conjointly used by several formations. Special organizations were frequently disbanded.

The strength authorization of the units was reduced. Soldiers of a younger age were replaced by older soldiers, who were not completely fit for field duty. Male personnel was increasingly replaced by females not only in the hospitals but also in the administrative branches and other technical sections.

Less and less material was authorized for the units, and anything that was not absolutely necessary was disbanded. In spite of this it was possible to overcome all bottlenecks, so that the medical treatment of wounded and sick soldiers was never seriously handicapped. The necessary medicaments, instruments and dressing material were available until the end of the war. Naturally one could no longer draw any unlimited number of supplies, and it was no longer possible to obtain all sorts of special preparations from the extensive stock of remedies of the German pharmaceutical industry. In particular there was a scarcity of all hormone preparations and medicaments





made of foreign raw materials, the supply of which was interrupted. As far as scarce preparations were concerned, the indication for their administration had to be considered very carefully. Paper bandages and bandages of other substitutes for the usual dressing material had to be used. The instruments could no longer be nickel- or chrome-plated as well as was done previously, and many of them could no longer be nickel- or chrome-plated at all. The manufacture of rare, special instruments had to be stopped. The continuous requirements, however, in particular those of the specialists could be complied with until the end. The stocks of German medical supplies captured by the Allies at the end of the war proved the skillful, and well-planned supply system which had been established by the medical service. Furthermore it proved that there was still everything available for the urgent treatment of the wounded.

The problems of the medical service certainly did not become smaller by the various retreats. Neither medical units, nor personnel or material were saved. The number of wounded and sick patients which had to be taken care of remained the same, they only had to be attended in an area which constantly became smaller. The medical units which became free at the front had to be employed in the rear areas again. The same thing did not refer to the medical units alone. For this reason it became more and more difficult to find suitable accommodations. The allied air offensives by which a considerable number of civilian and military hospitals were destroyed did the rest to render the situation more difficult. All the quiet bravery, the talent for invention and improvisation which was employed to render the fate of the wounded more tolerable, deserves the highest commendation for all participants, and should be remembered.

The situation became worse with regard to transportation. Many of the ambulances were used up during the Eastern Campaign and had to be salvaged. It was most difficult to replace them. Thus it was nothing unusual, if at the end of the war a division had only two or three ambulances left and if even those were in a poor condition. One could no longer speak of an authorized allowance of equipment. Improvisations had to be made to a large extent. All returning vehicles no matter of what kind they were, were improvised for the evacuation of wounded, such as buses, horse-drawn carts and any other vehicles one could get hold of. There was quite a number of very good constructions to improvise any vehicle for the evacuation of wounded.

The number of motorized formations also became smaller and smaller. Towards the end of the war the various medical units were no longer equipped to transport their personnel and material with their own vehicles. In case of movements the transportation took place in several stages. Units in the neighborhood had to help out with their means of transportation. Concentration of all, even the last vehicle at the places of requirement became a rule.





## II. The Navy.

### a) Ships.

With the beginning of the war, the sick-bays aboard ships were equipped better and more physicians were assigned to them. Provisions were made so that even major operations could be performed, a set of X-ray equipment and facilities for after treatment were added. The submarines too got their own physicians. However, such assignments had to be stopped soon, as the losses of physicians were so high that they appeared no longer tolerable.

The principal mission of the physicians aboard ships during the long combat cruises was to assure a variety of food that was rich in calories. No foreign ports were available for German ships where they could have taken aboard fresh food supplies. They had to depend on what they took along. It was therefore the task of the central offices to scientifically evaluate all problems concerning the preservation of food and to make the results available in practice. In this connection lack of raw materials frequently frustrated the best theoretical suggestions. In addition, the physiological conditions of life on submarines which had to remain submerged for a prolonged period of time was frequently the subject of scientific research work. New problems confronted the German Navy continuously, as the duration of combat cruises became longer and longer and the crews had to remain aboard ships for steadily prolonged uninterrupted periods of time.

Well equipped recreation centers were established not only for the crews of submarines, but also for the men of mine-sweeping flotillas, whose duty was strenuous and hard. After a certain period of duty they could be admitted to these recreation centers. Recreation centers and convalescent homes were established in all major ports where the crews could relax conveniently also for short periods of time, such as weekends.

As mentioned before, it was only at the beginning of the war, when merchant vessels were converted into hospital ships. They were equipped with surgical rooms, and laboratories with all the facilities available to a hospital ashore. In addition to the regular hospital ships there were improvised hospital ships which were equipped for only one or several cruises and transport vessels serving the purpose of evacuating those patients who had been treated previously, as f.i., in the case of retreats. Towards the end of the war, the hospital ships were frequently used as a replacement of regular hospitals for hospital treatment in the ports. Tug-boats and barges were used for the evacuation of wounded in inland traffic.

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The senior medical officer on hospital ships was the commandant, the responsibility for navigation rested with the naval officers, as probably is an international custom.

The experiences made with the evacuation of wounded by ships was in general very favorable. Such an evacuation usually guaranteed a careful transfer of the wounded. As no long distances had to be overcome, the time consumed for such an evacuation was tolerable. It is the disadvantage of an evacuation by ships that it will always last longer than with other means of transportation. As a rule no cruises were made through rough seas, so that sea-sickness did not play an important part.

#### b) Ashore

At the beginning of the war, the Navy established a number of new naval hospitals and naval reserve hospitals in Schleswig-Holstein. In addition the already mentioned recreation centers and convalescent homes were established. Abroad the Navy authorities had established sick-bays and hospitals with special wards in those areas where naval personnel or ships were stationed. To some extent, the naval hospitals were at the same location as the Army hospitals, so that a parallel performance of duties was unavoidable.

With the Navy, special consideration was given to the fight against venereal and tropical diseases which were particularly frequent in the ports. The Navy had particularly detailed and strict regulations concerning prophylaxis. Laboratories, hygienic- and research institutes were kept at the disposal of the Navy in addition to those available to the Army. Their services were available for the headquarters in the homeland as well as for local branches abroad.

All shore establishments of the Navy were stationary and they were established whenever necessary, there was no authorized allowance of medical equipment as was the case in the Army. Ambulance platoons were assigned in accordance with the requirements.

The scarcity of material and personnel did not affect the Navy as much as it did the Army because the number of personnel of the Navy did not increase to such an extent as within the Army. For this reason, the Navy was, until the end of the war, better off with regard to personnel and material than the Army. An exchange of material and the conjoint procurement took place at the end of 1944 only, when the offices of the Medical Inspector of the Armed Forces were established. The conjoint use of the Navy hospitals and reserve hospitals according



to a uniform planning and with consideration to the requirements of other branches of the Armed Forces took place from this time on.

### III. Air Force

Within the Air Force one has to differentiate between the medical service of the ground organizations, the flying formations and the parachute troops.

a) The ground organizations had an enlarged sick-bay at each air port for the daily care of patients with minor diseases and for first aid in case of accidents. They had an ambulance emergency squad at their disposal so that they could quickly give first aid treatment at every location of an accident. The air district commands which had been established in the occupied territories too, had in addition a varying number of Air Force emergency units, which were assigned to them according to the size of their district. These Air Force emergency units established Air Force hospitals. These emergency units were an intermediary between the medical companies and the field hospitals of the Army. They were mobile and had almost as much personnel as the medical companies of the Army; the material available to them permitted the hospital treatment of wounded and they had nurses, small laboratories and so on, but they did not have the same number of beds as the Army hospitals. They also had all special wards which were naturally not all in one hospital but were distributed over the entire number of units. In addition to the hospitals of the Air Force emergency units there were stationary hospitals with special tasks such as the treatment of patients suffering from injuries of the brain. The Air Force medical units had their own staff of nurses with their own chief nurses separate from those of the Army. The Air Force District Commands had their own medical supply depots with their own supply channels, their own laboratories and their own consultant specialists.

When during the course of the war, the anti-aircraft units were organised in divisions and corps, mobile Air Force emergency squads were assigned to them as well. The assignments of these Air Force emergency squads were very much the same as those of the respective army units.

Towards the end of the war, Air Force Medical Companies were established. This was done at the time when some of the former Air Force Personnel was reorganized into Air Force Ground Divisions for the purpose of infantry combat. Field hospitals similar to those of the Army were established for these units as well.

The motorization and the assignment of ambulance platoons to these Air Force units was always particularly favorable.





b) Flying formations. They had their own troop physicians who established sick-bays at the air ports and other landing strips. The Flying divisions also had their own Air Force medical emergency squads, which were assigned to them as required. As a rule, the flying formations were to receive their supplies from the ground organizations and they were supposed to have as few supply units as possible in order to remain mobile, however, during the advances the organizations of the air district commands were not always available at the time when the flying formations reached a certain location. Thus it happened that a varying number of Air Force medical emergency units was assigned to these flying formations corresponding to the situation and depending on the local conditions.

The Airfleet Commands had their own medical supply depots, laboratories and consultant specialists. They did not have evacuation battalions as rail transportation was exclusively handled by Army organizations.

c) Parachute troops and Air-borne divisions. The medical personnel of these units was considerably more numerous than with the Army. 1 physician and 4 medical corps men were assigned to 1 company. Additional physicians and medical personnel were with the battalions and the regimental staffs. The medical personnel of the parachute troops jumped together with the paratroopers. Medical supplies and stretchers were dropped in special containers with parachutes. These containers had a shock-absorber. All easily breakable material had been eliminated, as far as the use of glasses and bottles could not be avoided, they were packed in such a way that they were stored safely. The justification of these principles was proven in many tests. Very soon the containers with these shock-absorbers became a scarce article. When the surrounding of certain portions of the Army made it necessary to supply these units by air, the Army developed an improvised container with which medical supplies could be dropped safely from the usual height. They were arranged in the usual way and were surrounded by dressing material, straw and blankets. This improvised container was first used when the Stalingrad Army was surrounded and it proved very successful.

In addition the parachute troops had medical companies and field hospitals. Only a very few of these personnel had the necessary training and equipment for jumping with parachutes and this was limited for the groups which had to give the first surgical treatment. The bulk of the medical personnel followed with the first gliders. Their equipment was packed very practically in containers easy to handle, which had convenient carrying devices. In addition the stretchers mounted on wheels were used which had been taken over from the Army. These stretchers could be taken apart and were collapsible. They could be pushed or drawn by the personnel and facilitated not only the transportation of boxes but also the evacuation of wounded on stretchers. With the landing of air borne troops, motor-





cycles, were taken along for the medical service, but no ambulances. The motor-cycles had small trailers which were equipped for the evacuation of wounded and for the transport of supply-boxes. 3 wounded could be evacuated with 1 such motor-cycle. The medical companies and field hospitals were only equipped for the first surgical treatment of wounded and sick soldiers, but not for the hospital treatment of a longer duration. The evacuation of the wounded to the rear areas was done by the empty returning transport planes. Thus the parachute troops could take care of their own men at least for some time, even if the contact between the ground forces and the air borne troops was delayed.

d) Air evacuation of wounded. The flying formations and the air district commands had their own ambulance planes; these machines were regularly used for the evacuation of wounded. They were specially reconstructed for this purpose and had a small space with medical supplies. Their personnel was organized in medical emergency squads of the Air Force. The commanding officers of these units were medical officers; some of the pilots were medical officers too. Each plane had one medical corps man aboard. In general there were two types of ambulance planes, the so-called medical "Stork" (two seated plane of Type Fieseler Storch) which did not depend on an airport or landing strip for their start and landing. However, these planes only had a limited range. The second type were the planes of the type Junkers-52. 1-2 lying or 2-3 sitting wounded patients could be evacuated in the Stork, while the Junkers-52 ambulance plane could evacuate 8 lying and 10-15 sitting patients.

Special directions had been worked out for the selection of wounded and sick soldiers for air evacuation. These directions were expanded repeatedly during the war. Air evacuation was first of all intended for those patients who, after a surgical treatment could not be transported soon again; in other words, patients with gunshot injuries of the head or the abdomen, who had to remain at a certain location after their operation. The speed and large range of air evacuation planes made it possible to bring wounded quickly to hospitals located far behind the front lines or even in the homeland. At the beginning of the war, it was feared that air evacuation of the wounded might involve the danger of damage and for this reason all cases indicated for air evacuation were carefully selected. It was observed, however, that these hesitant considerations were not necessary and that air evacuation was pretty well endured by all wounded, particularly as it almost never extended over a long period of time. For this reason an air evacuation later on was considered as indicated only for seriously injured soldiers, for these valuable means of transportation became more and more scarce.

The Fieseler Stork ambulance planes offered the great advantage that they could land and quickly take off very near to the main dressing stations and that they could safely bring their patients from the front lines to the war hospitals.





The number of ambulance planes available was insufficient from the beginning of the war on for the evacuation of all those wounded who would have needed air transportation. This was very regrettable. The development of war surgery would have turned out entirely different, if it had been possible for instance to evacuate all cases with gunshot injuries in the head, abdomen, the lungs and the serious gunshot fractures of the lower extremities from the Eastern front with its disastrous traffic conditions far to the rear, if possible to the homeland. The longer the war lasted, the smaller became the number of ambulance planes available, at the end of the war there were almost none of them left.

For the evacuation of larger numbers of patients the returning transportation squadrons were the only means available. Many very practical constructions had been developed to convert these planes for the evacuation of wounded. Also the freight gliders and giant transport planes of the type "Gisart" were used for the evacuation of wounded, if they returned empty. The most difficult problem was that of heating the planes in the Eastern Theater in winter. All constructions proved too complicated and required materials which were no longer available or which were not available at the decisive moment or which turned out as a failure. Finally it turned out that the old means of the First World War, namely a thick layer of straw, hot bricks and sufficient blankets proved to be the best. When wounded had to be evacuated from an encircled area, every plane, no matter which construction and which type, was used and every little corner was utilized for the evacuation of wounded.

The disadvantage of this improvised air evacuation was that the pilots had strict rules about their loading capacity, which they had to obey. The landing strips had to be changed frequently because of enemy action. Thus it happened that a larger number of wounded arrived at an air port all of a sudden and without previous arrangements or information and that this air port was far away from any hospital or similar establishment. Ambulances or other means of transportation were also not always available immediately and had to be gathered from far away organization in many cases. Thus, it happened frequently that an improvised billet had to be established right at the air port for the seriously wounded. The same thing was true with regard to the evacuation, and the taking off of planes. Very often the arrival of the planes was delayed for hours and the wounded had to wait at the landing strip or air port for hours without proper food and care. During the winters in the east one had frequently no other choice than to take the wounded back to the hospitals again.

Difficulties in air evacuation have furthermore been caused by the fact that all regular air planes were subordinated to the Air Force authorities, while all ambulance planes were under the command of the Air Force medical officers. The Army units had to request such planes from time to time. As the bulk of wounded came from the Army,



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• *Chlorophyll a* (Chl a) is the primary photosynthetic pigment in most plants and algae. It is a green pigment that absorbs light energy in the blue and red regions of the visible spectrum. Chl a is essential for the light-dependent reactions of photosynthesis, where it converts light energy into chemical energy in the form of ATP and NADPH.

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1. *For the purpose of this study, the following definitions were used:*

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which was only natural,. and as the situation and therefore evacuation requirements of the Army changed frequently and rapidly, this method of requesting planes for air evacuation was much too complicated to function without difficulties. The one who had the best and the shortest connection with the next Air Force unit was most often the one who had the largest number of ambulance planes. This method did not always correspond to the actually urgent cases and to the actual requirements.

#### IV. The Waffen-SS (Combat-SS)

The divisions of the Combat-SS had medical companies, field hospitals, and ambulance platoons. A tank-division had 3 medical companies, while all the other divisions had two medical companies. One field hospital and 3 ambulance platoons were assigned to each division. Due to the fact that almost all of the SS formations were motorized, each unit had its own ambulance. One SS-corps furthermore disposed of 2-3 field hospitals, 1 evacuation company, and 3 or more ambulance platoons. These medical battalions of the SS-corps which consisted of the units described above, proved to be very useful. The distance between a division and an Army was in particular in the East and in the Balkans so large, the connections were frequently so difficult and time consuming that extensive efforts were required to have medical units of the Army available in time at far enough advanced points. In addition it was of particular importance to have one medical unit available at a point which was far enough advanced to facilitate the evacuation of the wounded. The evacuation battalions of the Army were in charge of such extensive areas that the number of their personnel was frequently too small for these purposes. Long before the war, the Army had demanded the formation of such a corps medical battalion, which, however, was always rejected by the military authorities because of the lack of personnel and material.

As all medical formations of the Combat-SS were better motorized than the corresponding units of the Army, the evacuation of wounded of the SS formations was easier than that of the Army.-- In the rear areas large SS hospitals similar to the war hospitals had been established. These SS hospitals were subordinated to the Chief office of operations of the SS. (Fuehrungshauptamt). . . When later on SS armies were established too, they were equipped like the armies of the Army. The SS had their own laboratories, medical supply depots, and supply channels. In contrast to the Army, the SS had nurses also in the field hospitals. Their organization was separate from that of the other nurses of the Armed Forces.





The medical establishment of the Army had to take care of the bulk of the wounded and sick soldiers. They were the first ones at the spot, they were more numerous and they were available earlier and quicker to other branches of the Armed Forces than their respective establishments. The establishments of the other branches of the Armed Forces were frequently of the nature of small separate detachments. The cooperation between the medical formations of the various branches of the Armed Forces depended overwhelmingly on the good relationship between the various senior medical officers and chief physicians, and this was also true with regard to the extent of aid exchanged in emergencies.

## VI. Public Health Problems

### 1. General Problems of Public Health in Occupied Territories A. Among the Troops.

When a foreign country was occupied, it was one of the first duties of the medical authorities, to inform themselves about the local state of health and to find out which communicable diseases were of importance, and where they occur in any considerable frequency. The reports about communicable diseases of the Public Health Offices furnished the best bases for these investigations. In the western countries and in the Balkan it was usually relatively easy to obtain these reports. On the other hand only a very few such reports could be obtained in Russia. The statements of individual physicians, mayors or even of the individual civilians furnished only an incomplete or false picture.

The cooperation with the Public Health authorities of the occupied countries was in general very successful. Almost everywhere there was a continuous exchange of information. If no public health authorities existed at a certain location, the troop physicians located in that area had to take over the role of these authorities. They had to make investigations concerning the state of health of the civilian population such as mass examinations, and to find out as much as possible about diseases which had previously existed in that area.

If an area was known as particularly infected, occupation troops were not garrisoned in that area. If this was unavoidable for military or tactical reasons an attempt was made to at least avoid an occupation of those parts of the town and those houses where infected civilians lived.

Circumstances became more difficult during a rapid advance into a country, concerning which little was known about its public health matters and the population of which had a low standard of living. There was no time for investigations and examinations of the civilian population.





The experiences made during World War I led to a strict separation of the troops from the civilian population. During the warm season, outdoor camping of the troops was the most simple and the best solution of this problem. In winter time, it proved successful to occupy only a certain part of the towns with military forces while the other parts were assigned to the civilian population. All rooms used by the soldiers were subjected to a careful cleaning before they were occupied. It was of particular importance to assure that the preparation of food for the soldiers was separated from that of the civilians and that the soldiers did not use the kitchen utensils of the civilian population in their billets. Also in case of a short period of occupation of certain billets special kitchens and separate latrines had to be built for the soldiers.

In spite of all the instructions and orders concerning strict separation from the civilians, no effective protection of the troops is ever obtained. In spite of all resistance of the opponents of immunizations and the organizations in contact with them, preventive immunizations will always have to be carried out and an attempt will have to be made continuously to improve the methods and results. It was only by the use of such immunizations that large scale epidemics among the troops could be avoided during World War I.

Within the German Armed Forces a combined vaccine-serum against Cholera, Typhoid abdominalis, Paratyphoid A and B was used. These immunizations were repeated every nine months. Smallpox vaccinations were carried out every five years. At the beginning of the war, a vaccine-serum against typhus was available in only small quantities. These were used for the immunization of physicians and nursing personnel who were particularly exposed to the danger of infection and for personnel older than 45 years. This was done as the experience of World War I. showed that the mortality rate of older people amounted to almost 100%. With an improvement of the production methods, the circle of personnel to be immunized could be enlarged and towards the end of the war, almost all of the Armed Forces in the East could be immunized. The immunizations were almost always performed at the beginning of the cold season. Protective immunizations against diphtheria were given only to nurses and medical personnel. Frequently very intensive reactions were observed as a result of these immunizations. No protective immunizations against tetanus were given within the German Armed Forces. It has been discussed for a long time, whether or not their application would be useful. After the campaign into France the French physicians summarized their experiences along this line: An uncertainty always existed within those parts of the French Army, which had supposedly received the protective immunizations and the question was whether the man had really received his immunization or not. Thus one decided to give every wounded soldier the usual dose of anti-toxin as several fatal cases of tetanus occurred at the beginning when no additional anti-toxin had been given.





With consideration of the many other immunizations which were given to the German soldiers an attempt was made to avoid a second tetanus injection. Thus one decided to desist from an injection of tetanus-anatoxin and give anti-toxin only at the time of injury. We observed some cases of tetanus but only a small number. The question remains open whether or not these cases could have been avoided too by a preventive immunization with tetanus-anatoxin.

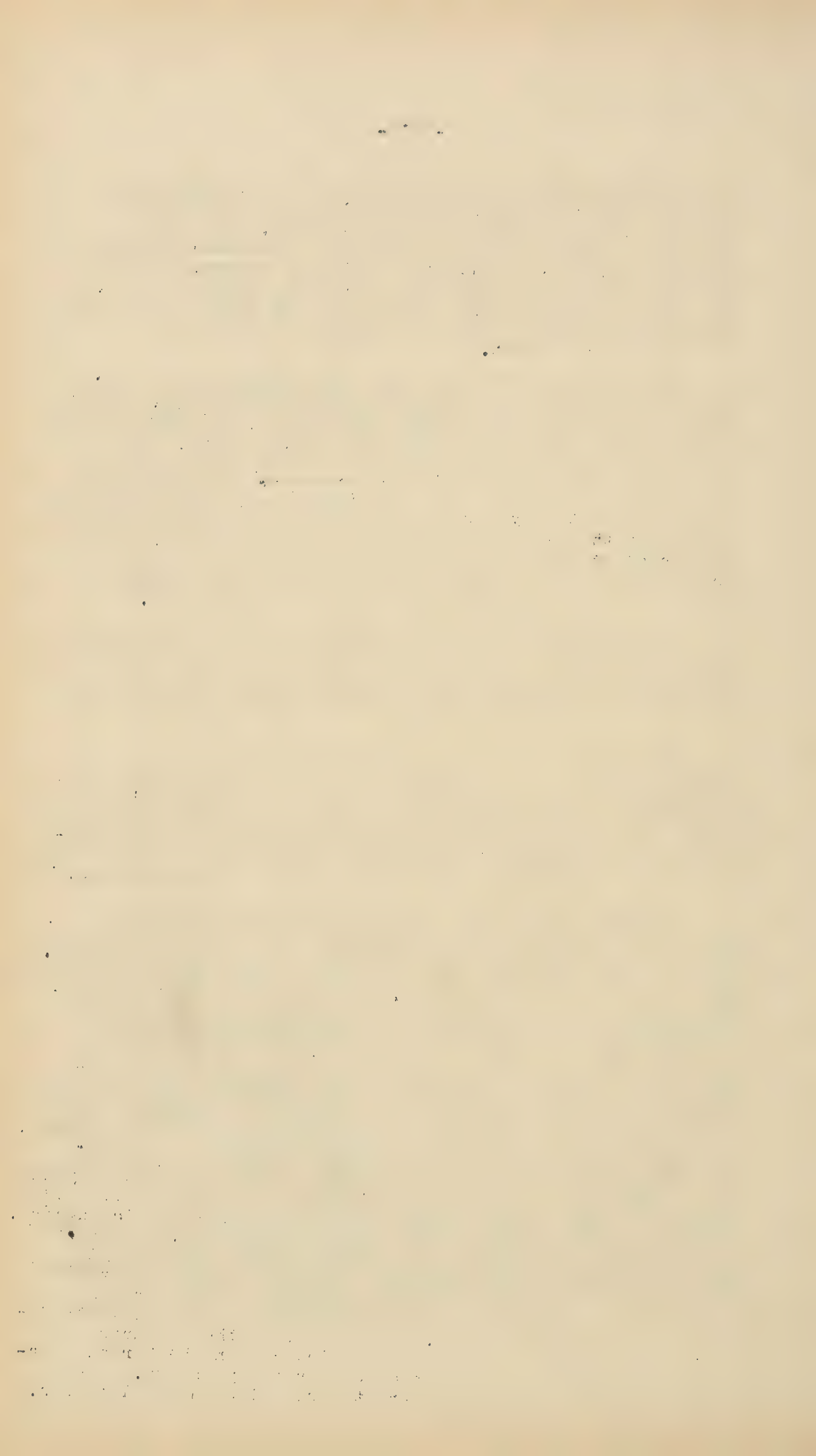
Experiences have shown that the immunizations against typhus do not offer a complete protection from that disease, but that they contribute essentially to a much milder course of the disease and prevent a fatal issue. No difference could be found between vaccines from louse eggs and vaccines from mice. As far as typhus is concerned, the immunization gives extensive protection from infections by that disease. If the program of immunization is interrupted and typhus makes its appearance in a group, the percentage of fatal cases is almost as high as if no immunization had been undertaken at all. Practically no cases of cholera were observed during World War II.

Before World War II, the opinion was very wide-spread in scientific circles, that a negative phase would be created by immunization and that the human body would then be particularly susceptible to infection and unable to mobilize an effective resistance.

Caution has therefore been suggested to avoid "immunizing into" an epidemic that has already broken out.

However, this can frequently not be avoided under field conditions. The experiences of World Wars I and II, have proven that such considerations were frequently overemphasized and it can now be said that injuries or particular inconveniences have never resulted from such immunizations.

Dysentery presented a very serious problem to the German Armed Forces. All experiments with vaccinations, bacteriophages and so on did not show any complete success. In most cases, genuine dysentery was preceded by non-specific intestinal diseases. If they once occurred within a unit, hardly one man remained uninfected. It was frequently argued whether or not these diseases were of a specific nature. There is no sense, however, in not realizing that these diseases were of the dysentery group and it is useless to find any new nice sounding name for all these diseases the majority of which took a generally mild course. Sulfonamides showed a marvelous therapeutic success. It was only strict discipline in all kitchens, a correct personal hygiene of the cooks as well as satisfactory storage and transport of food that could serve as a preventive measure against dysentery. An additional important measure of prevention was the combat against flies as the principle transmitters of this disease. The extent of the fly- nuisance always served as a very valuable indication whether all garbage and sewage had been removed carefully enough. The troops had to maintain a strict discipline in the latrines.





The most simple and most effective means was to cover fecal matters with one shovel of sand or soil. It has proven very useful to serve a special diet for patients recovering from intestinal diseases to all members of such units, which had been infected with dysentery. In addition every seriously ill soldier had to be removed from the units immediately and had to be isolated and treated in the sick-bays for intestinal diseases as described above.

In the fight against communicable diseases the most simple procedure always showed the best success: early removal of all patients who were seriously ill and isolation and treatment, daily inspection of all troops by the troop physician and continuous control of all soldiers suspected of having a communicable disease.

I wish to make a short comment about the nutrition of the troops in addition to the experiences with dysentery. The food of the units should be adapted to the climate and other local conditions, although it should not be changed in principle. It would definitely be wrong to attempt to feed the troops with the diet customary in the respective country. In course of time every nation has adapted itself to a certain diet which varies more or less from that of other people. The nations get used to their diet and can digest it well. In this respect it is not only the climate and the environment that are of importance, but also the habits and old customs. Frequently it is impossible to discover any medical justification for advantages or disadvantages of such a diet. If one would attempt, for instance to feed a German soldier exactly the same way as the population in Lapland or those on the island of Crete he would soon come to the point where he could no longer tolerate such food. All attempts that have been made in that direction during the war turned out to be a failure. It is only natural that one has to take the climate into consideration. Thus it proved to be useful to issue cod-liver oil in Norway and fat in Russia during the winter, while in all warm countries the supply of too much fat in the diet should have been avoided. It was attempted to issue a diet rich in vitamins and easily digestible. Thick pea soup or bean soup were not indicated during the Greek summer. The basic consideration in the preparation of food, however, should always be an attempt to issue food which is similar to the diet to which the soldier is accustomed at home. The psychological factor of preparing menus, which are particularly well liked by the troops should not be overlooked.

There were two special problems of importance during the stay of a unit in an occupied country: the fight against venereal diseases and against human parasites.

The first important problem in the campaign against venereal diseases was the question of whether or not brothels should be established. Opinion was about equally divided on this subject. In addition to the medical point of view, the ethical and moral points of view play important roles. In favor of establishing brothels was the practical point





of view that they permitted a control, treatment and handling of the prostitutes which was possible in no other way. The attitude of Russian women was frequently admired. It was only in a few of the industrial cities where any prostitution was found at all.

The second problem in the venereal disease question was really a matter of prophylactics. Also in this respect the opinions concerning the importance of prophylaxis and the advantages of an obligatory prophylactic treatment varied widely. In addition it was often debated whether or not a soldier who had not taken prophylactic treatment following intercourse was subject to punishment. This problem was handled in many different ways within the various branches of the Armed Forces. The Navy had the most strict point of view in this respect, while the Air Force was the most mild. The Army took a moderate position, advocated voluntary prophylaxis and punished the soldiers only in case of obviously bad intentions. The supporters of each system prized the advantages of their method. An obligatory prophylaxis and punishment in case of an infection could be successful, only as far as a strictly isolated unit was concerned such as a ship. As far as shore based units were concerned, this method proved to be a complete failure. The German Navy did not have fewer cases of venereal disease than the Army or the Air Force.

The fight against human parasites was first of all a problem of the struggle against lice. The establishment of hot air delousing chambers within each unit proved very successful. They could be established quickly and easily even under the most primitive circumstances and the material required could be found practically everywhere. When the Medical Inspectorate finally succeeded in introducing the use of underwear impregnated with "Lauseto" (a preparation similar to the American DDT), it was intended to have the underwear impregnated in laundries behind the front lines and then issue it to the troops as a regular change. However, this plan could not be put in practice because there was not sufficient underwear available to issue several sets to each man. The troops, however, were very well satisfied with Lauseto and willingly undertook all the inconveniences involved to accomplish the impregnation of their underwear themselves.

#### B. Among the Civilians

The statements made above show that particular attention had to be paid to the public health service for the civilian population. It was a general order that the troop physicians had to have consulting hours for the civilian population except at such locations where a sufficient number of indigenous physicians was available. Hospital space was





reserved for the civilian population and medicaments and dressing material were issued for their care as far as possible. In those areas which had been occupied for a longer period of time, a medical administration was established and the supply of medical requirements was organized on a system of authorized allowances.

Large scale clean-up campaigns were started in all villages and houses. Special weeks were set aside for campaigns against rats and mice at the same time as the period during which the troops did the same things in Spring and Autumn. If epidemics occurred immunizations, disinfestations etc., were ordered.

It was frequently very difficult to arouse the interest of the civilian population and to get them away from the old beliefs of their parents and grandparents. Negligence, superstitions, prejudice and passive resistance played an important part. It is obvious that it was impossible to uproot false practices to which the population had adhered for decades within the relatively short period of the occupation. Projects that would have proven themselves successful only in the long run and which would have lead to success only in the future generations could be appreciated and planned accordingly but they could never be performed. In addition it was impossible to adapt customs and habits to those of the occupation power. This was not intended at all. If a certain portion of the population is supposed to make some progress in hygiene this will take a certain time as in every other field. Any disturbing or forcible measures seldom last very long and seldom lead to success.

## 2. Special Problems of Public Health Service.

### A. Russia

The most numerous and most difficult problems had to be solved in Russia. First place among these problems was taken by the Russian climate. It is very hot in summer and very cold in winter, the transition period bringing the much feared mud. It is in Russia where one will realize again that man is not the master of nature, but that the natural forces frustrate all human inventions.

During the muddy periods in Russia it was not only the surface soil but also the deeper layer of the roads and paths that changed into a sticky mass of considerable depth. The autos slipped back and forth in this mud like small boats in a rough sea. Frequently the entire road with the autos slipped off to the side. All heavy trucks were lost for the time being and could be saved only with cranes and tractors. Light vehicles which could be drawn out of the mud again by four to six men proved much more successful. Then they could proceed - until the next time they





slipped into the ditch. Sometimes it was easier to progress across the fields rather than to follow the roads. The condition of the road frequently was not apparent until one had become stuck in with an auto. It was only a careful testing of the deeper layers of the road that was helpful and this could be done only with a vehicle which did not get stuck itself.

During the winter it was the snow storms and snow drifts that hindered the traffic. It took only a few minutes before all depths or corners of the road were completely full of snow so that every vehicle became stuck. As long as the wind was blowing, it was senseless to attempt to clear the snow away because the same amount of snow would have been blown back within a moment. Whoever got caught in such a snow storm could only do one thing, that was to try and find a place of protection from the ice cold wind. If this wind then disrupted the telephone lines a distance of a couple of hundred yards could no longer be kept in communication with any modern technical means. Only a man, perhaps a horse could work their way through the snow, until a state of complete exhaustion or freezing to death put an end to their efforts.

It was first of all the wind that had to be feared, because it blew across the flat country with much more force than was known to us in Germany. In the steppes this wind has frequently lead to such a cooling off during the nights that sometimes in summer one had to put his overcoat on in the evening, even though one had been running about in swimming trunks during the afternoon. For this reason, the houses in the steppes had been built half into the earth as a protection against this wind.

The intense cold of the winter was not so difficult to endure as one would have believed when there was no wind. However, it reached astonishingly low levels. The indigenous population had adapted themselves to a large extent to this continuous cold and it was much easier for them to endure it. The German troops soon adapted themselves to this climate too, so that the later winters in Russia did not involve as many losses by a long way as did the first winter. In most cases it was the newcomers who suffered the effects of cold during the later winters. The population had taught us to use cotton padded clothing and no furs or felt boots. Nothing could be touched with the bare hand because the skin adhered to any iron surface immediately. Bread that had been brought along had to be carried next to the body, because it froze otherwise. Carefully measured doses of alcohol used in small quantities and with large intervals of time between doses were quite useful. However, it required excellent discipline to not drink too much of it and too often, for in this case the well known injuries due to cold were only favored and could no longer be avoided. For this reason, the general prohibition against consuming alcohol in case of intense cold was absolutely justified. At the beginning of the winter campaigns in Russia frozen limbs were warmed up





very slowly and the patients were brought to cold rooms. This proved to be unnecessary and the patients were warmed up more quickly later on. If a unit came in to a snow storm the soldiers had to try to find some immediate protection from the wind or to create it. Thus for instance they could dig out holes or trenches and they had to remain in motion constantly. Anybody who did not have sufficient energy to do this, froze to death.

In addition to the heat, the summer time involved the nuisance of flies, gnats and dust. Only those people can talk about dust who have been in the steppes in front of Stalingrad and in the ~~I~~igiesen steppes. Every column of cars was in such a dense dust cloud several meters high that vehicles coming from the opposite direction could recognize them only from a distance of a few yards. These dense dust clouds also rolled over the radiators of the autos like waves of water as though the autos were driving in a stream.

As far as flies are concerned one could no longer speak of single flies because they appeared in such numbers, that the walls and ceilings were black. It was only the burning off of flies by flaming bundles of straw that brought relief. In the medical establishments there were special squads going from room to room without stopping whose job it was to spray Flit (insect repellant) or to paint the walls and windows with Gix (German insect repellant) and with solutions similar to Lauseto. This was the only way to obtain a measure of relief. In the trenches and dugouts along the Wolchow river and in similar areas the gnats were an almost intolerable nuisance. One could not sleep without wearing a gnat veil and gloves. The gnats were a particular nuisance if one had to go to the latrine.

The conditions of accommodation were absolutely insufficient in the sparsely populated country. The overwhelming majority of the houses in the villages consisted of very low cabins built of mud. Cities with large buildings were relatively few. All large military establishments gathered there and there was frequently an intense competition for every possible building that could be used. The requests of the medical authorities were always considered with priority. However, it was only the medical establishments of the rear areas that could be stationed in the cities. The advanced medical establishments, including those of the armies, depended on the villages and the farmers cabins. Thus it was the first mission of every hospital to reconstruct or to construct a new structure to fulfill the most primitive requirements. Most frequently the construction work would just be completed when the unit had to move again and to start anew at another place.

Also in every other respect there were very few of the auxiliary means available in the country which are continuously required by every hospital. Almost everything had to be procured from the homeland. Due to the poor traffic conditions this procedure frequently took an endless amount



you will find it very interesting to read the story of the life of the man who was the first to be executed by the electric chair. He was a man who was very kind and gentle, and he was very brave. He was a man who was very kind and gentle, and he was very brave. He was a man who was very kind and gentle, and he was very brave.

vi. d. t. o. b. . o. f

Invited by the  
Honorable Mr. Justice  
McGee, Chief Justice of the  
Court of Appeal for Ontario,  
to deliver the following  
Lecture at the University of  
Toronto, on the occasion of  
the opening of the Law School  
on September 1st, 1908.

Lecture given at the  
University of Toronto,  
September 1st, 1908.  
by  
The Honorable Mr. Justice  
McGee, Chief Justice of the  
Court of Appeal for Ontario.

1891.

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 2. Particular  
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1. The first part of the document is a list of names and addresses, including "Mr. J. H. Smith, 123 Main St., New York, N. Y." and "Mr. J. H. Smith, 123 Main St., New York, N. Y."

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of time. Even articles of daily use such as dishes, containers, sauce pans and so on could not be procured locally in case of loss but had to be obtained from our own medical supply depots. Tables, chairs, beds and other furniture were missing entirely. Thus the hospitals usually employed a staff of workers who manufactured improvised equipment. The Russian workers proved to be very skilled in the production of such improvised equipment. The difference between hospital service in France and Russia was enormous. An attempt was made to exchange formations. However, this did not prove to be very useful because there was usually a considerable amount of time consumed before the units adapted to the French circumstances had made themselves accustomed to the life in the East. This was particularly true for the female personnel.

The East demanded the most in physical and psychological fitness. The campaign in France was about like a maneuver in comparison to the campaign in the East.

A number of unknown and seldom observed diseases made their appearance in the East. Typhus and Wolhynian fever have been known from World War I. Other diseases of the mud fever group caused considerable diagnostic difficulties but they were limited to small areas of infection. In southern Russia the numbers of virus meningitides accumulated and their treatment and prevention caused numerous problems. Sulfonamides were successful in only some of the cases. In general they took a moderate course, seldom ended fatally and usually subsided after a couple of weeks. As a less known disease tularemia was observed in the steppes and central Russia. It had broken out in large epidemics among the Russian civilian population and the Russian Armed Forces and was just subsiding when the territory was occupied. The German Armed Forces still had a large number of patients, but fatal cases were seldom observed. The transmitter of this disease was some kind of weasel, which lived in such large numbers in the steppes that they were frequently run over by autos.

Plague was hardly observed at all. There were some old plague foci in the Kirgiesen steppes. In peacetime the Russian civil administration had established a net of laboratories at the margin of the steppes so that preventive measure could be started in time. A principal task of these laboratories was the control of rats and of the weasels mentioned above, both of which were transmitters of plague. These laboratories were taken over by the German authorities immediately and one saw to it, that they functioned again with their former trained personnel. These skilled individuals performed good work and they were helpful in the campaign for the extermination of the weasels as a preventive measure against tularemia.





### B. Balkans

In the Balkans the conditions of life were in general more favorable than in Russia. The Balkan climate had very hot summers, but there were never such severe winters as in Russia. Due to the mountainous character of this country, the supplies depended on the few roads and railway lines. In Rumania the contrast between the poor and the rich people was quite marked. There are some single large cities with modern buildings and a western culture, but the country population is very poor. This difference is less obvious in Bulgaria. The country population is more wealthy while the city population leads a typical small city life. In Greece this difference between poor and rich was very great. There is a supreme class of rich and elegantly dressed people and a very poor class having no influence on public life, within which fatal cases due to malnutrition were observed even in peace time. In Serbia, there was a wealthy and physically strong class of farmers with the mass of people of the cities living under good general conditions.

The public health problem was dominated by dysentery in summer which affected all those countries mentioned before. In Serbia it was first of all typhus and in Greece malaria was the principal problem.

Even during World War I, typhus had played an important part and had reduced the Serbian Army in numbers. For this reason the Serbian military and civilian public health authorities cooperated willingly and performed very helpful and cooperative work. Many German hygienic establishments dating back to World War I were found again in Serbia and were put in operation again. During the actual campaign in 1941, typhus did not play an important part on either side. After the campaign, however, a striking increase and decrease of the number of cases among the civilian population set in. The Serbian people had been split into parties and religious communities and since the century of Turkish domination there had been a continuous guerilla warfare in this country. The Roman Catholic Croats, the Greek Catholic Serbs, the Mohammedan Bosniaks and Montenegrinians as well as the right wing members of the organization of Mihailowicz, and the members of Tito's forces, the Ustacha and Chetniks fought each other and were partly in favor of and partly against the German Armed Forces. Frequently they caused differences between the Armed Forces and the organizations of the Civil Administration of the country. It required a careful study to find out who was shooting on whom. The battles between the different guerilla groups among themselves or against groups of the German Armed Forces were carried out with such cruelties and atrocities as were unknown to that date to the German soldiers. Minorities could not keep alive and if they did not want to be exterminated they had to migrate to such areas where the members of their belief were in the majority. From these areas, however, other minorities migrated and thus there was a continuous moving back and forth of the people.





Military medical posts were established along all the frequently used ways and cross roads at the borders of particularly endangered areas. In these medical stations the population was examined, vaccinated as far as possible and above all disinfested. Unfortunately, there was at that time no "Lauseto" and only insufficient quantities of immunization serum against typhus were available. For this reason the disinfection was at all places performed by means of hot air chambers which could be improvised quickly. Mobile equipment was made available by the German Armed Forces as well as the means for disinfection, vaccination serum medicaments and dressing material.

Behind the medical stations, hospitals were established which served the purpose of treating those who had been found sick. Particular difficulties were encountered during the disinfection of the Mohammedan population. Their religion prohibits the killing of animals and therefore also the killing of lice. It was not seldom that we could observe Mohammedans carefully taking lice off their shirts and throwing them out of the window alive no matter whether some one happened to be passing by or not. For this reason the number of typhus cases did not decrease considerably during summer. Practically the entire population of that area was infested and for that reason was a more dangerous carrier of infection. One advantage of this country was that the Mohammedan ritual baths could easily and well be reconstructed into a delousing establishment with showers.

By this measure it was possible to avoid large scale epidemics and to keep local epidemics under control. When the conditions became more quiet and constant later on the control measures against typhus could also be performed more quietly and more steadily and thus this disease was no longer of such dramatic importance as in 1941/42. In any case it was possible to protect the country from the danger of a pandemic which threatened this area to a considerable extent. Later on the control of typhoid and in some parts of the country of malaria was predominant.

Malaria was a dominating factor in the public health problems of Greece. The entire population of this country had been infected with malaria. For this reason the people were little appreciative of strict control measures. Sanitation measures had been started by the Greek Civil Administration, however, no means were available for the entire country and thus some of the plans could not be carried out and many good intentions were frustrated by the impossibility of carrying them out logically and sequentially.

The predominant forms of malaria were tertiana and tropica. It were in particular the acute forms of malaria tropica which lead to a quick fatal issue and thus caused very inconvenient surprises in the beginning. For this reason, instructions were given to not waste any time with a microscopical finding to establish the diag-





nosis or with differential diagnostic considerations but to make a blood test immediately and to inject atabrine intramuscularly. It was observed that atabrine never had a harmful effect even if the diagnosis was not confirmed and if typhoid or pneumonia were the final diagnosis. These acute cases of malaria tropica required an immediate and strict action as in comatose cases for instance. The essential point in this connection was the early beginning of therapeutic measures.

The cases of malaria tropica were the most dangerous ones, however, fewer relapses were observed in tropica cases than with the milder form of malaria tertiana. An intensive amount of energy was put in the research work that was done to find a remedy against the residual forms of the excitants remaining in the various parts of the tissue. No complete success has ever become known.

Within the German Armed Forces a prophylactic treatment with 0.06 gm atabrine was performed. These doses could be given daily or as a single dose every two or three days, or on the weekends. There were enthusiasts and opponents for each method and every branch of the Armed Forces had its own particular method of prophylaxis. Within the Army the experience was made that a daily administration will not be forgotten so easily as an administration after longer intervals of time, and that in case of an interruption of the prophylactic treatment the atabrine level does not sink as much as in case of a weekly administration. The most difficult problems in this connection were caused by those soldiers who were detached from their units such as drivers and similar personnel who were more or less on their own, as well as small detached units. Patient advice and instructions showed better results than strict orders and last but not least significant the appalling clinical pictures within the civilian population. The civilian population tried to recommend all sorts of household medicine or remedies and to exchange them for atabrine which at that time was a very welcomed commercial item on the civilian black market.

The prophylactic treatment with atabrine as well as the actual treatment with atabrine and with plasmochin subsequently has shown very good results. No damages other than a yellow coloring of the skin at the end of the prophylactic treatment were observed. Bed-nets for the protection against mosquitoes could not be supplied to the troops in sufficient quantities and for this reason had to be reserved for the malaria hospital wards. For the billets of the troops some sort of a collective protection proved to be very useful and construction groups with specially trained craftsmen went from billet to billet to construct them.

The course of this disease could only be eliminated by a complete destruction of the Anopheles mosquito. For this reason sanitation measures were started in those areas which were most heavily exposed to danger. For this reason the number of civilians infected among the population was determined first and the so-called "malaria-index" was found by systematic group examination of the





civilian population. Then maps were made and marked accordingly to caution the troops against any billeting and first of all against any camping out in these particularly endangered areas. These maps were of importance for all newcomers from other theaters of operation as, due to their being unacquainted with local conditions, they usually became the first victims of a malaria epidemic. As soon as a transport of soldiers on the railroad had reached the Balkans atabrine tablets were issued right in the train as the beginning of the prophylaxis treatment. By this preventive measure, some epidemics could definitely be avoided.

The drainage of swamps was one part of the sanitation program, furthermore lakes and river beds were regulated, dykes were newly erected or improved. Furthermore a grand scale project for the regulation of the Warda river was worked out and planned. The war events, however, made it impossible to carry out this program. Its performance would have been very important for the elimination of malaria in the area of Saloniki. The malaria cemetery of the allied troops of World War I, showed the dangerous extent which this disease could reach. During and after World War I, the British, French, and the Americans have tried their best with this project, however, only partial solutions were obtained. In many cases even these establishments required considerable repair.

Disinfestation squads sprayed Schweinfurt green on the water and used substitute preparations when this could no longer be supplied. In addition cultures of several kinds of fish which were known to destroy Anopheles larvae were raised and distributed into those waters.

Within the civilian population an attempt was made to treat first of all the children and measures for the Greek Civil Administration were suggested, assisted, and requested.

In addition to malaria, pappatacci fever was new for the German troops in Greece. Several cases of pappatacci fever occurred also in Serbia. This was a mild disease which as a rule subsided after three or four days. In general, it caused a certain immunity which was geographically limited however, and which did not exclude infections in other areas. At the beginning it could hardly be differentiated from malaria. The decisive factor for recognizing the disease was the general impression one had of the patient, in addition a swollen face and conjunctivitis. Practically there was no protection against the pappatacci gnat, it was very small and could even slip through the mosquito nets. The bites of these gnats caused very inconvenient wheals which itched for a long time.

In Greece the German troops have also made their first acquaintance with communicable jaundice (hepatitis epidemica). Later on it was also observed in other theaters of operation, on the island of Crete and on other Greek islands. The first interesting observations could



be made about the route of infection. On the island of Crete the number of cases of hepatitis epidemica was equally high within the English as well as within the German troops, while the Greek soldiers and the Greek population were not infected at all. In contrast to this an epidemic occurred at the same time among the children of the civilian population. The German soldiers on the islands of the Aegean Sea got sick only when they came back to the continent and got in contact with their previously infected friends.

The first attempts to keep virus cultures were also made in Greece. In general there was no prophylactic treatment. The mass of the cases of hepatitis epidemica took a mild course, frequently these cases could be dealt with as outpatients. A specific serum was developed only towards the end of the war, but it was not used in practice.

### C. Africa

Among the many problems of the African theater of operation climate, nutrition, and gastro-intestinal diseases were the most important ones. The deeper a theater of operation is situated in the warm country, the more the principal will prove useful to have protective measures prepared by physicians and engineers ahead of time to have the troops follow only after all important protective hygienic measures have been arranged, and to take the units out of all endangered areas as quickly as possible and to billet them in a decentralized manner. The military missions will not always allow carrying out these objectives. Therefore it is the more important to perform the measures described above as quickly as possible after arrival. Hygienists and engineers, disinfestation squads and men for the construction of baths as well as the personnel for laboratories and medical service should follow immediately behind the first wave of the advancing troops.

The climate of North Africa is very hot in daytime and cools off considerably at night. It proved necessary to arrange for sufficient clothing for the protection against cold at night and the troops had to learn to "dress themselves" for the night, above all the abdominal areas had to be kept warm. In daytime one had to protect oneself against the sun. Hazards were involved in walking around with as little clothing as possible. The clothing developed by the Tropical Hygiene Department fulfilled the requirements and proved useful.

The much more difficult problem was that of nutrition. The food supplies could not always be protected sufficiently from spoiling. It was noticed that the German troops were missing that experience which the English troops had acquired in the colonial wars. Their measures, above all the improvising measures, were taken over to a large extent. Unfortunately, the food situation in Germany had become so difficult even at the time of the beginning of the





African campaign that the tinned food was more or less monotonous. Appetite is capricious anyhow in a hot climate and it became worse by the monotonous diet. Fresh food could hardly be procured from the African country. Water was supplied to the troops by columns of water tank vehicles and water pipe lines were built behind the troops as quickly as possible. Also in this field the lack of routine and experience of the German technicians could be noticed. The nutrition problem has not been solved in a satisfactory manner on the German side.

Thus it happened that gastro-intestinal diseases did not fail to occur. Every soldier from the highest to the lowest rank had his diarrhea with relapses. This depended much on the personal attitude of the man and on how he understood to get along with this disease. Acute severe forms of this disease were unusual. In most cases they were of a mild but chronic character with regularly occurring relapses which finally led to serious general symptoms, injuries to the liver and so on, and which weakened the patient to such an extent that finally he had to be sent home. The change of personnel within the African Corps was relatively high. Severe acute diseases were kept under control by sulfonamides, however, they failed in case of the lingering and chronic forms. After the acute form of the disease had been overcome, a supersensitivity of the gastro-intestinal system remained so that the soldier reacted with diarrhea to every poorly prepared diet or to climatic influences. The decisive factor was always whether the patient succeeded in limiting the number of relapses by an appropriate personal hygiene.

True cases of amebic dysentery were also observed in Africa and they played a more important part in this theater of operation than in other southern countries such as Greece. For some time all of these gastro-intestinal diseases were diagnosed as amebic dysentery, however, these diagnoses could not be confirmed. On the other hand it must be admitted that amebae could frequently be proven only after a long period of hospitalization of the patients.

Hepatitis epidemica also played an important role in Africa and took a more serious course than in other areas. This was due to the fact that the gastro-intestinal system in general had been injured more with these soldiers than with those in other areas. On the other hand there was no malaria. A frequently observed disease were the badly healing ulcers of the lower legs which occurred in large numbers subsequent to superficial injuries of the naked lower legs. They healed best when treated with bandages which kept the effected limb at rest and which improved the blood circulation in the lower limbs.





### D. Norway and the Artic Circle.

The long nights and long days, as well as the absence of any change from day to night, to which the Middle Europeans are accustomed, required a considerable adaptation of the German troops. During the dark months the absence of sunlight was compensated by treatment with ultra-violet rays. Psychically labile individuals had a hard time adapting themselves to these circumstances and some of them had to be transferred to other theaters of operation. This was done only in individual cases. The mass of the soldiers adapted themselves to the new conditions surprisingly quickly and without any particular inconveniences. In this connection it is also essential to point out that in contrast to World War I practically none of the so-called "neurotic reactions" were observed.

Accommodations were in general very poor in this sparsely populated country. The troops depended on constructing their billets themselves. Within this program some very nice and useful buildings were established which also fitted into the character of that country. There was sufficient wood available which could be used as building material with the exception of the Tundra areas of Lapland. Here the warfare was generally entirely different from that on other fronts. There was no stable front line, but only advanced outposts and between them there was the no man's land in which fighting was going back and forth.

The diet had to correspond to the climate and for this reason had to contain ample fat and protein. Sufficient fish were available. In order to increase the daily fat ration cod-liver oil was issued to the troops the vitamin content of which had a twofold value during the dark seasons.

With the introduction of the Sauna (Finnish baths) the troops in the north realized a very valuable idea. It proved to be a particular good means of strengthening and refreshing the human body and it soon became so popular and was so welcomed that it was introduced on other fronts as well, particularly in the east.

### VII. The influence of the Allied Offensive on the course of the Medical Service in the field and in the homeland.

By the destruction of the German cities and the interruption of the supply channels and communication lines the entire life of the civilian population as well as the entire warfare was changed completely.

1. The first part of the paper is devoted to the study of the asymptotic behavior of the solutions of the system (1) as  $\epsilon \rightarrow 0$ . It is shown that the solutions of the system (1) converge to the solutions of the system (2) in the sense of the weak convergence in the space  $L^2(\Omega; \mathbb{R}^n)$ .

Life and work in the homeland depended completely on small incidents. It was not only the continuous bombing raids that kept the population restless and in fear, but also in day time the low flying fighter-planes which opened fire on pedestrians on the streets in the cities and in the country-side on the women working in the fields. One city after the other was destroyed. In spite of all that the population always built some kind of an accommodation, again repaired work-shops and factories in an improvised manner and it was not so rare that people who were evacuated to the villages in the country returned to their destroyed houses. The population was constantly restless, there was no longer anything like a regular daily course of life. After the large-scale air-raids it was not always possible to liberate those who were buried alive under the ruins and who thus were doomed to a terrible death, in spite of all comrade-ship and good will to help one's neighbors. Frequently the destructions reached such an extent that there remained no other choice than to block entire roads with stone walls in order to prevent further harm to the surviving people.

Medical care was rendered more and more difficult. Hospitals, clinics and private practices with irreplaceable instruments and equipment were destroyed to a steadily increasing extent. Thus one decided to evacuate the hospitals to the country and there the operations were performed in as improvised a manner as in the field. Operation and dressing rooms were established in farmhouses and public air-raid shelters of the cities, in the basements and underneath the ruins patients rooms for internal and infectious diseases were established. The number of civilians inflicted with injuries due to bomb-raids increased to an undetermined extent. The highest numbers of beds occupied in clinics and hospitals in peace-time now became the lowest limit of wounded in the respective medical establishments.

Burns due to phosphorus and particularly the terrible burns which people suffered when entire blocks of houses had become a sea of flames and when they had to escape through this wall of flames, constantly represented new problems of treatment and prophylaxis. Almost every air-raid brought new surprises and experiences in that field. Protective measures against burns and the effects of phosphorus had to be developed and had to be adapted to the scarcity of all materials. New methods of treatment had to be developed. Above all injuries to the eyes were new and it was only ample irrigation of the eyes that provided some help against the persistent remnants of phosphorus. For this reason all first aid and emergency stations were equipped with one set of instruments for eye irrigations and protective eye-glasses were issued to the population. Instruction leaflets were distributed to physicians and the population.





It proved to be useful that the civilian air-raid protection service had established first aid and emergency stations even before the war, which could now be used as a basis for all first aid treatment. They were distributed all over the cities in a similar way as the sick-bays and first aid stations of the battalions in the field and they were constantly attended by medical personnel. Their equipment was good for first aid in case of accidents and they also had equipment for resuscitating people who had been buried alive. General injuries, burns and bone-fractures were the most common injuries next followed poisonings by smoke-gases. Frequently it was a very difficult problem to reach the first aid stations and the wounded lay about on the rubble during and after the air raids, because the masses of rubble hindered any traffic tremendously.

There was soon no difference between the civilian and military medical establishments in the homeland. In case of bombing raids it was only a natural duty of all military authorities and organizations to help with their personnel who were usually ready for action more quickly, no matter whether military personnel or civilians had to be attended. In the hospitals and first aid stations of the troops civilians were also hospitalized and treated, evacuation units and emergency squads of the medical service considered it their honorable duty to be first at the place of need.

A true hospital treatment was almost impossible at that time. During the numerous air-raids and alarms seriously ill patients as well as freshly operated ones had to be evacuated to the air-raid shelters. Electric light, supply of gas and water, as well as the sewage system frequently failed for days after the air-raids, and thus made the most extreme emergency measures necessary or even forced abandoning or evacuating hospitals and clinics. A permanent atmosphere of tension existed in all hospitals. The number of military and civilian hospitals which were destroyed by bombs increased more and more, and the lack of beds was more and more evident.

Thus it was decided to evacuate into such areas as Upper Bavaria, Schleswig Holstein, East Prussia and Silesia which were less exposed to danger. Silesia in particular soon had the reputation of being the air-raid shelter of Germany. Later on, when East Prussia and Silesia had to be evacuated because of the Russian offensive, the misery in the remaining parts of Germany increased more and more. Thereafter the bombing raids on the cities crowded with refugees did the rest, such as the air-raid on Dresden, where a countless number of people was killed.

Life in Germany at that time consisted only of a constant moving back and forth, an evacuation from one endangered area to the other, and one improvising measure followed the other, and every solution was of a temporary nature only, because it was rendered useless after a short time due to new events.





Thus it could not be prevented that diseases and operations which were harmless as such, took an unfavorable course. The mortality rate increased to an previously unknown extent. An additional unfavorable factor was the steadily decreasing power of resistance because of the poor diet, the restlessness, excitement and psychic strains due to the war and the air-raids. There were no epidemics. The population had accustomed themselves to hygienic measures to such a degree they tried to maintain them even under the most primitive conditions. The repair of all hygienic establishments was one of the first measures of reconstruction. No protective immunizations were given in general, but only at those places where it proved to be necessary.

The destruction of all ways of communication by the Allied air offensive did the rest. The homeland and the front-lines were affected hereby to the same extent. Very soon one could not speak any more about a regular railway traffic. Again and again main railroad tracks were destroyed, important crossings and bridges hit, railroad stations, switches and control-towers destroyed. Blocking off of tracks, elimination of main railroad tracks, detours and so on had become a rule; it was very rare that a train reached its destination without any incidents. Long lasting disturbances of the railroad traffic resulted from alarms, even if there were no actual air-raids. In spite of all this however, it has to be pointed out that the repair work could in general be done very quickly, even though the destruction appeared catastrophic in the beginning. In most cases an emergency traffic system could be established within some few hours or days.

More important was the destruction of the rolling stock for this could not be replaced. On and beside the tracks the burned out railroad carriages accumulated and the locomotives destroyed by gunfire. Locomotives were a particular welcome target of low flying planes, frequently they did no damage to the rest of the train and destroyed only the engine and the tender. Naturally the repair of these locomotives was a long-time project, which usually was even more delayed by the lack of material. The rolling stock decreased and decreased to a frightening extent.

Even more catastrophic was the effect of the air-raids on the truck-traffic. In the course of the Allied offensive it became almost impossible to have trucks running to and behind the frontlines in daytime. Immediately groups of low flying planes appeared and destroyed the trucks by gunfire. The communication roads were lined to the right and left with destroyed and salvaged cars. One could only muddle through from farm to farm and use the short intermissions between the air-raids for driving. In spite of all this it is astonishing how many transports got through.

Particularly inconvenient were the interruptions of the food-transports. Frequently they were delayed for days, sometimes the store-houses were full to their



capacity, but due to the lack of rolling stock or as a result of the destruction of the communication lines these food supplies could not be brought to the places of need. The inhabitants of the cities, and the people in the camps were hungry in spite of available food stocks at other places. Many facts observed by the Allied after the end of the war, which at first had been unexplainable to them, became obvious herewith. Frequently it was simply impossible to overcome even the smallest distances. The greater the difficulties became the more the willingness to help ones neighbors and the spirit of comradeship, the will to sacrifice came to the fore among the German people. In spite of the fact that all capacities of the people were already under stress there was still a great deal done to assist the victims of these catastrophes and above all to ease the fate of the sick and wounded. The quiet bravery of the German people characterizing this period is worth adding to the great performances of other peoples in the high points of history.

These descriptions were true for the conditions in the homeland, they were very similar among the fighting troops. Their communication lines were also destroyed by aerial warfare and their supply channels were also paralyzed. Burns and injuries due to phosphorus were of practically no importance among the troops but on the other hand there was also a constant atmosphere of tension within the medical service due to the constant changing of the hospitals. They repeatedly had to move after they had barely been established.

In the west all hospitals were evacuated along with the wounded from France. After that a further evacuation was impossible. The remaining area had become too small and it had already been too crowded with hospitals and clinics filled with wounded. For this reason the hospitals in the West were left alone where they were with all their personnel and with an ample supply of food and medical stores until the Allied troops arrived there and took them prisoners. Patients with minor diseases frequently left of their own accord because they did not want to become prisoners. They migrated eastward to their home villages. In the eastern area all hospitals were supposed to be evacuated and all wounded and sick were brought back into the remaining part of Germany.

As a result of the Allied offensive it was soon no longer possible to issue uniform orders due to the separation of large parts of Germany from each other. Then the senior medical officers had to make their own decisions in their own areas. As an example I wish to mention the conditions on the Silesian Front which were more or less true for the other sectors as well.

After the offensive towards Berlin an isolated area developed consisting of the southern part of the province Brandenburg, Saxonia, Thuringia, Silesia, Czechoslovakia, the northern part of Austria and the eastern part of Bavaria. During the further progress of the Russian offensive all hospitals in Silesia could be evacuated. A difference between military and civilian patients was no longer made. The military hospital trains were also at the disposal of the civilians as the civilian authorities had no hospital trains under their own direction.





It was particularly difficult to keep account of the patients cared for in houses outside hospitals as private patients and to arrange for their evacuation. As Silesia was less exposed to the danger of aerial warfare many sick and weak people had escaped to that district and sought accommodation with acquaintances and relations. In the mountainous area of Glatz, large numbers of pregnant women had accumulated who hoped to await their childbirth in quiet at that place. At that time Saxonia and Thuringia could still easily accommodate these people. Thus it was possible to take care of all of them at the beginning. The slightly wounded and sick patients were released from the hospitals and treated as out-patients in order to make space in the hospitals for the more seriously ill. In addition auxiliary hospitals were established in villages. The kaserns, which by the way were very seldom hit in bombing raids, offered large and good rooms for accommodation of patients. The bulk of the wounded coming back from the west was directed to Upper Bavaria.

However the time soon came when all beds were full and no new space could be created any more. Thus there remained no other choice than to run the hospital trains as far west as possible, place them on a siding and use them as fixed installations. It is hardly necessary to point out that every little corner that could be used was filled. The hospital trains were equipped with reserve stocks of food and medical supplies and they got as much as they could take aboard. The minimum issued were the requirements for three months and there was no maximum limit.

By and by the area became tighter and tighter. Bavaria was lost, the Allied offensive came in from the west to the Czech border and the hospitals trains stationed in those areas fell into the hands of the Allies. Austria was lost entirely but above all the Russian offensive progressed as far as the Erzgebirge. Thus Saxonia and Thuringia had to be evacuated as far as the rapid Russian progress permitted. As a last safe spot there remained only the spas and health resorts of the Sudetenland and the cities in the western part of Czechoslovakia. All hospitals that were still available were directed to that area and used there. Trains and truck convoys were rolling into that area without interruption. One train after the other was set off on sidings in that area. When the Russian volunteers, fighting with the Germans, started to become unreliable and even took an antagonistic attitude the trains had to leave that area and were sent to the Sudetenland. The number of wounded and sick coming to the hospitals remained equally high even after the end of the war and it decreased only very slowly. About sixty thousand wounded and sick had accumulated in this area and were evacuated gradually into the hospitals and clinics of Bavaria and western Germany.

A large collecting camp was made of the airport at Eger where everybody who retreated from the east was stopped. The number of people varied between forty and sixty thousand men. Within a few weeks more than eighty thousand men passed through the camp. Among them were between four and five thousand rather severely wounded as well as two thousand amputees who no longer required further treatment but who merely needed their prosthesis. They had been picked up by the Allies along the roads and were brought to Eger. Even all the inmates of a school for





the training of the blind, with their nurses and teachers, arrived there. As the airport had been destroyed everybody had to camp in the open field and was subjected to the influences of the weather. Only very slowly was it possible to find the most urgently needed accommodations and to offer at least a tolerable billet to the severely wounded. It was now no longer possible to use our own medical supply channels. In wise foresight, however, a part of the medical supply depot had been taken along into the camp. In particular the fate of the war-blinded and the double amputees was pathetic. Only after weeks was it arranged to have a kasern in Eger as an accommodation for them. When finally the first blocks of huts were delivered for erection on the airfield, the camp was dissolved.

In the Russian theater of operations the air raid attacks were less important than was the effect of the guerilla warfare.

In the dense woods and swamps of the Russian countryside it was impossible to come to grips with them. They had an excellent intelligence service. As a rule they were informed ahead of time about all measures planned against them so that they could move aside and camouflage themselves, which they could do exceedingly well. Thus all measures of checking on and combing through an area showed only very limited success. In any case these efforts did not change the general state of affairs. The best that could be achieved was that the guerillas changed the present field of their activities for another place. In general they attacked single autos and small groups, they used identification papers and uniforms of German prisoners whom they often released. It was a definite risk to drive alone in a single auto on the country roads after dusk. In addition it was desirable to not be alone when going to the billets after dusk. The guerillas were well equipped, above all with all devices of modern communication and with modern explosives. They maintained a regular courier service to places behind the front and frequently by airplanes. The guerillas often were in the majority and sometimes they were even better equipped than the German troops.

Among the guerillas there were different groups, Russian, Polish and Ukrainians, who sometimes fought bitterly against each other and who had quite different attitudes towards the German Armed Forces. Thus it happened that Ukrainian guerillas released German soldiers after a short period of time and took only their identity papers and uniforms from them. An equally antagonistic attitude existed towards the German authorities of the civil administration.

The first signs of guerilla warfare were observed in the blowing up of railway lines, culverts and bridges, which lead to considerable difficulties in the already sparse network of communications. Each morning in the rear headquarters it was first announced which communication lines had been destroyed during the previous night. It was not rare that as many as 200 incidents of this sort occurred in a single night within the area of an Army Group. In most of the cases these interruptions could be repaired within one day but by and by it almost became a gamble whether the transports arrived at their destinations as planned or not. It frequently happened that



the trains got stuck suddenly in front of these places where the tracks had been blown up. Thus urgently required supplies arrived late or not at all and it was no longer possible to plan on a certain schedule or even the operation of trains along definite routes. Every day brought new surprises and a new situation. There was a constant uncertainty and unrest. In addition the number of military personnel occupied with guard duties increased considerably under these circumstances.

## VIII. EXPERIENCES AND CRITIQUE

### EXPERIENCES

In the field of medical science only some few problems of epidemic and infectious diseases will be discussed. The measures taken in this field and the protective immunizations have proved very useful. It was possible to obtain the same favorable result as in World War I and to keep the number of patients with a fatal issue due to diseases or wounds at the same low percentage. Between 90 and 95% of all patients receiving medical care could be restored. The number of fatal cases due to diseases was again lower than the number of fatalities due to wounds. The percentages were slightly more unfavorable during this war than in World War I. However, the difference was not very great. This is not surprising. World War II lasted considerably longer than World War I and was carried on in countries where the climatic and health conditions were much less favorable. The German troops then never had to overcome such severe winters in Russia as in World War I. In addition they have never fought under equally unfavorable conditions as were general in World War II. Also the stress and the continuous performance expected from the German troops were much greater in World War II. There was no such thing as a reserve or resting division and there was no regular exchange from and to the front lines. A war of rapid to and fro movement makes more and greater demands of the soldier than does a war of position. The achievements in the field of medical service will always remain as a record of glory for the medical profession.

The problem of producing typhus vaccine serum on a grand scale was solved. On the other hand the problem of the struggle against dysentery and its sequelae remained unsettled. Although the mass of these patients were mild cases and took a light course, the wide spread occurrence of this disease should be sufficient justification for further scientific research. For similar reasons immunization material against epidemic hepatitis should be developed.

In the general treatment of infections no really effective measures for the treatment of gas gangrene have been found as yet, not even with penicillin. As far as tetanus is concerned the problem to be solved is whether a combination of anatoxin-anti-toxin injections can prevent fatal cases completely.





### Medical Equipment

The medical equipment taken along has proven useful. Above all, the handy packing in boxes. The medical outfit issued to the troops was too heavy and too large for a war of movement, particularly in the east. The unit for treating combat injuries and one reserve supply box should be sufficient, everything else should be supplied and issued as required.

The troop physician should have a vehicle capable of going across country on which there is sufficient space for himself, his medical corpsman and the first aid equipment. In addition this vehicle should be capable of being used for the evacuation of wounded on stretchers. It might be possible that a motorcycle capable of going cross country with a trailer or with a similar construction will be the solution of this problem in the future.

The medical reserve supply cars assigned to the division surgeons should carry supplementary articles to make up for the reduced supply of the troop physician and it would be desirable to have them attached to the medical company of the division.

The housekeeping equipment and the number of vehicles for the medical service was in general too scarce in the German Army. During the course of the war the housekeeping equipment was increased considerably. The medical services of the Allied forces were better equipped in this respect.

### Organization

The organization and planning of the medical service at the beginning of the war proved useful under fire during the greatest part of the war and under the most difficult circumstances. The changes during the course of the war did not rise as a result of justifiable necessity.

The elimination of special authorities in the rear areas with their own staffs and supply channels as they existed in World War I proved useful. Many kinds of friction that arose in World War I were avoided.

The introduction of a medical battalion in the army corps proved useful. Within the Combat SS it proved to be very useful. More details are mentioned in the section dealing with the SS.

Horse drawn medical companies are a part of the past. If they existed during World War II it was an emergency measure because the motorized equipment of the German Armed Forces was not always sufficient. Horse drawn medical companies must be replaced by motorized medical companies equipped with vehicles capable of going across country.

The number of ambulance platoons should amount to three within each division. There can never be too much transportation. The assignment of ambulances to the troop physicians did not prove as useful as their cooperative use under the direction of the division surgeon. If they are assigned to the troops they frequently stand around idle.





The number of ambulance planes should have been much higher. The Army authorities, who were the ones having the greatest requirements, should have had more voice in the use and assignment of these planes. Preparations should have been made at all airports by the Air Force emergency squads or by other units of the Air Force medical service for the evacuation of the wounded and for their temporary hospitalization.

### Hospital Cities

The idea of establishing hospital cities which enjoy a guaranteed and absolute protection from air raids and artillery gunfire is excellent. The practical realization of this idea will meet considerable difficulties. The rigorous request that only hospitals and medical personnel, sick and wounded should be accommodated in these cities and no military authorities or war industry will be very hard to comply with unless such a city is prepared for this purpose during peacetime. But even then it will hardly be avoidable that individuals and authorities coming from destroyed neighboring cities will seek accommodation there. In a thinly populated country such a separation will not be practicable at all. At the beginning of the war an attempt was made to create large hospital establishments in barracks or tents in protected and marginal areas alongside the cities. The disadvantage of this program was that the supply of building materials necessary and the construction of the buildings themselves took such a long time that other hospital establishments had to be taken over in the meantime at other places. After this step had been taken it was understandable that these hospital establishments were given up after a few months and exchanged for barracks with all their disadvantages. In addition transportation to and from these establishments in the marginal areas of the cities was very difficult and would have required new railroad tracks, new roads and similar extensive construction. This program was soon abandoned. It would only be suitable for a long lasting war of position such as took place in World War I.

It would be easier to convert spas and health resorts into exclusive hospital communities or to establish special hospital quarters in certain sections of the cities. But even this requires a very foresighted plan in peacetime and probably would call for a complete change of the building plan of most of the cities.

### CRITIQUE

#### Unification of the medical services of the three branches of the Armed Forces.

This was the most frequently discussed and probably the most important problem. In a situation like that of the German Armed Forces, which from the beginning of the war had to be careful with the use of personnel and material - and this was the more true when the lack of all material became more and more evident - it was an urgent necessity to avoid any double organization or duplication of work. At the time of the 100 000 men Army and at the beginning of the expansion of the Armed Forces it appeared possible to realize this intention. However, when the Air Force made



itself independant things turned to the other direction and it was possible only at the end of the war when the shortcomings made the establishment of a central authority for the Armed Forces Medical Service necessary. The orders for this authority however, were laid down so insufficiently that it could have a favorable effect only in a very few fields.

There are many factors which support a uniform administration as well as uniform directives for the medical service.

If a compulsory military service is introduced, uniform directives must be issued for fitness examinations and Veterans' Welfare problems. It is not fair that every branch of the Armed Forces attempts to pick out the best personnel from the mass of young men liable to universal military training with the excuse that they need particularly selected specialists or, as the SS used to do, to try to win physically and mentally better qualified pupils and students right at the schools by a more or less benevolent activity, in other words to pick the rasins out of the cake. Under such circumstances only those personnel who are not wanted by anybody else will remain for the other branches of the Armed Forces without special technical missions, such as the infantry. Every branch of the Armed Forces must accept a certain portion of physically and technically less qualified recruits. There will be sufficient positions where such personnel can be employed.

In addition care and welfare after discharge must be uniform in principle. Naturally people with special assignments can deserve special concessions, but the basis must be uniform in order to avoid bitterness and resentment.

The instructions for the performance of the medical officers' duties must be uniform with regard to medico-legal opinions, fitness examinations and Veterans' Welfare problems. The special requirements for special duties within the Armed Forces should be laid down in writing and attached to the principle directives as an annex or enclosure. The medical commissions for examinations and medico-legal opinion should consist of members of all three branches of the Armed Forces.

In addition all hospitals of the Armed Forces should be established and managed on a uniform basis. It is an unnecessary waste of personnel and material to duplicate the same hospitals and the same special wards at the same locations or close together by various branches of the Armed Forces. Conjointly used hospitals with an equal number of physicians of each branch of the Armed Forces should be established. Special experiences, could then soon become generally known and a healthy competition would soon develop and the further scientific training would be stimulated considerably. After their hospital duties the medical officers would naturally be available for service and assignments within their own branches. The hospitals must accept members of all branches of the Armed Forces as patients. It is uneconomic and unnatural if one hospital is overcrowded at a certain location while the other one is half empty.

In war time such a conjoint organization can exist in the homeland without particular difficulties. In war-time an equal distribution of the patients, evacuation problems and so on are more important than in peace-time. The field formations will have





to remain separated. However, a regional equal distribution of the patients should avoid a duplication of work and parallel establishments. The commanding medical officer of that branch of the Armed Forces which is strongest in numbers, must be authorized to supervise an equal distribution of hospitals, special wards and patients according to a uniform point of view.

As regards evacuation and transportation, it should be said that there is no other way in war-time to direct railway transports than to do this from a central office, as this was always done. On the other hand it proved to be a complete failure to assign ambulance planes to Air Force units only, which had much smaller requirements than the Army. It would have been much more advantageous to have the Army Group physicians or army physicians in charge of the assignment of such ambulance planes, in any case such medical officers who could best survey the needs and to whom the over-all requirements were reported. It has been a matter of course during the war that the ambulance emergency squads got their technical equipment from the Air Force and with regard to organization thus remained a part of the Air Force.

As regards the field of science it will be necessary to work out uniform directions for protective immunizations, prophylactic treatment, sanitation and so on. It is not understandable how units located in the same area and exposed to equal hazards of epidemics can receive their protective immunization at different times and according to different points of view. It was just this fact that aroused the curiosity of laymen again and again and their justified conclusion was that, if even the experts could not come to an agreement about the method, the method itself has probably never been tried out and its value must therefore appear doubtful. The readiness of the men to submit to the measures ordered was considerably reduced by this fact.

Scientific institutes should always remain independent. Every branch of the Armed Forces has its own research missions and objectives and needs special institutes. Scientific progress has in general always been obtained by having many scientists work at one and the same problem so that each one of them progressed one step further. There should, however, be a conjoint supervision from one central office in order to make the results of the research work at a certain place available for the nation immediately. Nobody can bear the responsibility for an isolated work of each institute behind closed doors, so to speak.

If there are so many common interests and points of contact, the personal circumstances of the medical officers should also not differ too widely. The principal problems, such as organization, training, promotion, position within the officers-corps and so on should be settled on uniform principles. In addition to these uniform principles which should be used as a basis, every branch of the Armed Forces will have to have its special directives in accordance with its missions and requirements. The principles, however, should remain the same, otherwise there will be jealousy and resentment instead of a good competition.

The medical officer is supposed to hold the same position and to have the same authority in the field of medical service as has the troop officer from the military aspect. He should





interfere with the duties of the medical service as little as a medical officer would ever interfere with a troop officers military duties. It is understood that the members of the medical service cannot have their own way of life but that they must co-operate and adapt themselves to the general and military situation and that they will have to keep up with the general military requirements. Medical directives ranging into the field of military decisions can be issued only after consultation with the military commander in charge and according to his decision. What I mean to say is that the medical officer must have the same authority over the medical personnel and establishments as the military commander has over the military personnel. The medical officer was supposed to be the commander of the medical establishments and to direct their use in accordance with the military requirements, but on the other hand he was also supposed to be responsible for the entire course of the medical service. The chief of the entire medical service of the Armed Forces was the Armed Forces Medical Inspector who was authorized to make decisions and to issue orders.

The training and the continuation of medical studies for physicians can only be conjoint for all branches of the Armed Forces. Only later on will it be possible to separate them for specialist's training, just as the surgeon and the internist will in the beginning have to undergo the same studies and follow different lines only later on during the studies in their special fields. The training of medical students in a conjointly used military medical academy has proved useful and if a certain separation was made later on this was done more for reasons of external influences than for logical reasons.

In war-time an equal distribution of medical officers and personnel in accordance with the present requirements under the direction of one central office and according to uniform points of view is indispensable. A uniform planning and cooperation is even more important for the procurement of material. It makes of course a considerable difference whether or not inexhaustible reserve supplies are available or whether every piece of material has to be thought about twice. During World War II the fact that there was no conjoint procurement of material at the beginning had a very inconvenient influence and in addition the fact that every branch of the Armed Forces had its own supply channels. The scarcity of material and the turmoil which was caused by the different supply channels were the decisive reason for the establishment of the position of the Army Medical Inspector. Naturally consideration has to be given to the special requirements and needs of the various branches of the Armed Forces, as far as equipment and supplies are concerned.

As far as the experiences made are concerned, it has been pointed out in former chapters and at various places in this work which disadvantages have been caused by the splitting of the medical service, not only within the Armed Forces, but also within the numerous other organizations and how urgently necessary the establishment of the Office of the Medical Inspector of the Armed Forces was. It has also been pointed out before that his practical authority has been very limited and that his office was established too late to affect the surprising events. In this connection it can be said that some expectations have not been fulfilled, perhaps because they were too far reaching. The few





fields, however, which he could influence favorably, such as an equal and proper distribution of medical supplies, medical personnel, the introduction of conjointly fixed dates of immunizations, showed how advantageous his activity could have been if he had received the authority at an earlier date and to a larger extent. No disadvantages have become known due to the establishment of his office. If it had not been HITLER himself who was the Commander in Chief of all branches of the Armed Forces, but a Field Marshall, the Medical Inspector of the Armed Forces would have gained much more influence with his suggestions and proposals.

#### Summary:

The medical service as a branch of the Armed Forces should have a Medical Inspector as chief, who should be authorized to give obligatory instructions and orders for all parts of the Armed Forces; if military interests are involved he should report to the Chief of the Armed Forces and act according to the latter ones decision. The Medical Inspector of the Armed Forces should be the highest commanding officer of the medical service and in this capacity also chief of all the medical personnel of the Armed Forces. The Medical Inspectorate as his staff has to be equally staffed with medical officers of all branches of the Armed Forces. All matters pertaining to fitness examinations, Veterans' Welfare, problems concerning hospitals and evacuation are immediately under his supervision, the Military Medical Academy and the offices for the procurement and distribution of material. He should settle the principle problems of scientific nature, the training and personal matters of the medical personnel. He should be authorized to inspect all medical establishments of all branches of the Armed Forces without previous notice.

Subordinate to him should be the Medical Inspectors of the various branches of the Armed Forces who should have equal authority within their branches. The medical officers and personnel should be members of their respective branch, wear its uniform and enjoy its privileges if there are any. For the special missions within their branch they should receive special training. A change from one branch of the Armed Forces to another should be possible by mutual agreement. Conjoint missions such as hospital service should be performed on an equal basis, according to equal directives and points of view and by physicians of all branches of the Armed Forces.

The developments in recent times urge having the world which is now subdivided and surveyable governed no longer according to the special interests of the nations but by a World Government. In this aspect many people see the only possibility to avoid future wars. The problem of a conjoint Army for this alliance of nations has been debated. Obviously it is the medical service that could be managed most easily within such an army, for medical science is international as is no other service. The first step in this direction should be to at least establish a conjoint medical service within the Armed Forces of one nation.





THE MEDICAL SERVICE ON THE SUBMARINES

by

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## SANITAETSDIENST AUF U - BOOTEN

von

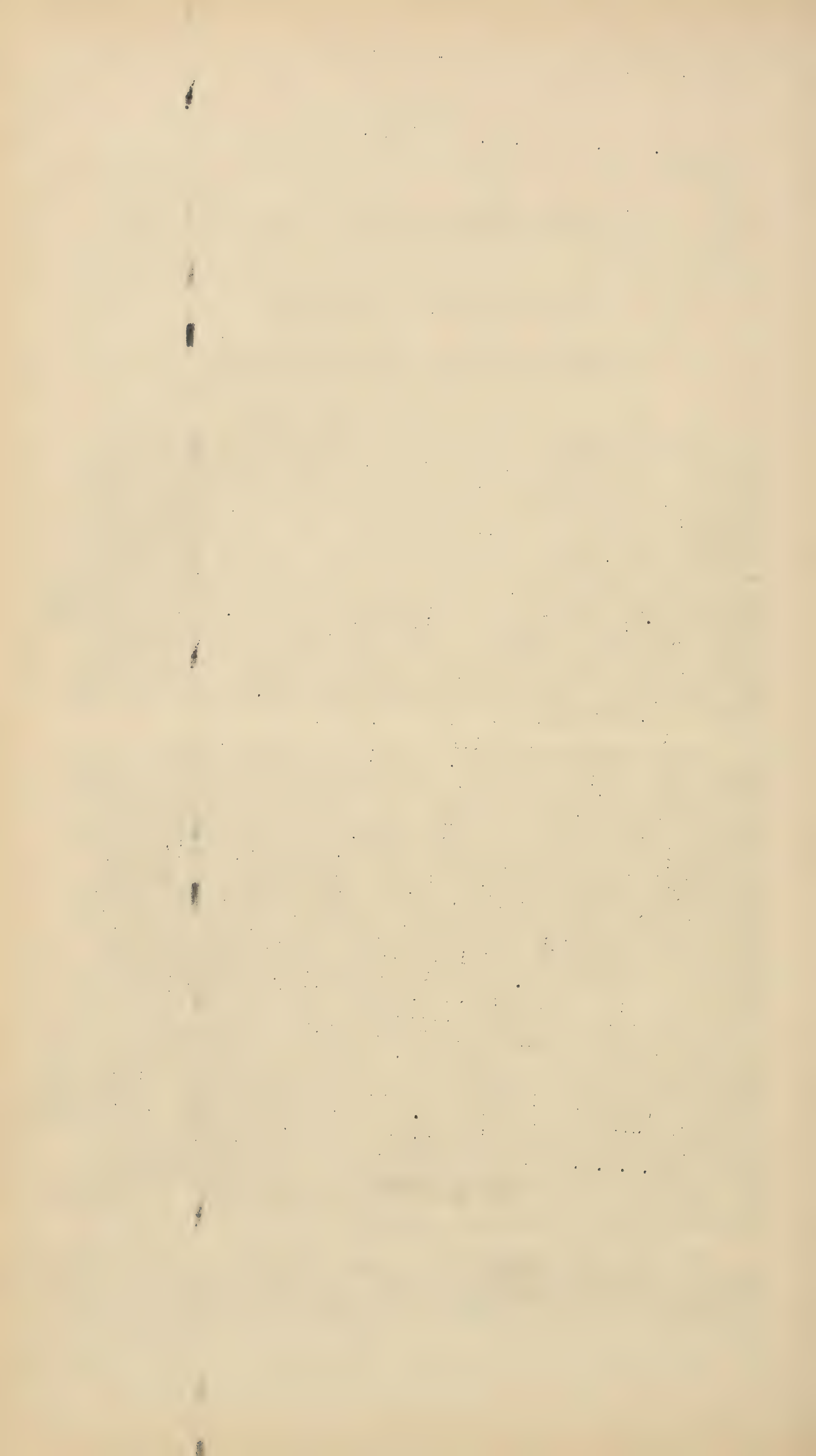
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## THE MEDICAL SERVICE ON THE SUBMARINES.

The development of the medical services with the submarines reflects the history of the submarine warfare as a whole. Before the war, in the years 1934 to 1939, 7 flotillas came into existence in rapid succession. Generally a flotilla consisted of 10 boats with additional mother-ships and supply-vessels. To every flotilla a medical officer was attached who had his office aboard the mother-ship and who was immediately responsible to the Commanding Medical Officer of the Navy. For special missions, as for instance submarine tests in the Atlantic, a few flotilla surgeons went aboard the boats concerned (1938, duration 8 weeks). Thus in a small extent first experiences were obtained, since only a few reports of experiences in submarine-warfare made during World War I were at hand and these obviously had neither been correlated nor evaluated.

After the outbreak of the war, the Chief Command of the Submarines (B.d.U.) was set up to which the flotilla surgeon of the 5th submarine flotilla stationed at Kiel, Dr. LUEBBEN, was attached for taking charge of the medical services as staff medical officer for the Commander in Chief of the Submarines. There were no regulations nor precedents for this assignment. Dr. LUEBBEN was soon replaced by Dr. KUNERT (killed in action 1943 with U 850) who, despite his relative youth recognized the opportunities and tasks lying ahead in the field of submarine medicine. Within a short period and with only a few medical orderlies he established a smooth working organization, making use of as few written orders as possible, since he rather laid stress upon a close personal connection with all personnel concerned. He effectively recommended scientific research with regard to submarines, thus laying the first stone for the foundation of the Institute of Research in Submarine Medicine. At first his idea was to take advantage of the facilities of the university and the location of the Commander in Chief of the Submarines at Kiel to establish a loose association of physicians who were interested in clinical and theoretical research. When the war extended and the operating flotillas were transferred to occupied countries the plan of establishing an institute arose which should work in close connection with the operating units so as to remain in touch with the current problems.

In 1940, in addition to the operating flotillas a great training organization was set up. The former submarine training school was divided in 2, later in 4 submarine training units (U.L.D.). These were assisted by schooling and





training flotillas in which specialists were instructed and new boats prepared for action. Especially in 1940, they were the most important units of the submarine services not only with regard to the number of personnel but also to the work which was done. Outstanding medical instruction was given there by teaching commanding officers and radio personnel the practice of first aid. These instructions were a separate branch of the military training.

In the beginning of 1942 Dr. KUNERT was replaced by Dr. med. habil. POHLE. The Chief Medical Officer of the Navy was lead to make this change by different reasons, as in the meantime the necessity of scientific research in the submarine-conditions was recognized. Hence appointing an experienced scientifically trained officer was considered necessary. Dr. POHLE had completed his special training as medical specialist with Prof. Dr. Franz VOLHARD and later with Prof. Dr. NONNENBRUCH at Frankfurt/Main. Since the number of medical officers attached to the submarine services increased continually, a senior officer had to be put in charge (now Chief Naval Surgeon attached to the Commander in Chief of the Submarines) and, due to the increasing tasks of the medical services, "Commanding Naval Surgeons at the various Submarine Sub-Commands" (F.d.U.) had to be appointed. This was done in order to assure a good control of the medical services. These medical officers, for the most part, had administrative tasks whereas the Chief Naval Surgeon attached to the Commander in Chief of the Submarines reserved to himself the decision in any important medical, especially scientific question.

In the first phase of the war - until the middle of 1941 - the medical duties aboard the submarines were exclusively performed by the radio personnel under supervision of the commanding officers. This method which had proved successful during World War I was adopted from the Merchant Marine. Further, methods in use aboard ships protecting the national fishing trade were employed whereby in dubious cases of illness information was requested from a competent station ashore by means of the radio. The commanding officers were instructed to give just the previous history and the symptoms and according to this received the likely diagnosis and suggestions as to the treatment. This method proved to be successful in many cases.

During this space of time the "Medical Manual for Submarines" served as a guide. It was first edited during World War I and revised in 1939 by Dr. LUEBBEN. In this book the diseases were listed according to their symptoms and their treatment was suggested in a brief and rather simple manner. But many commanding officers of submarines considered this manual as insufficient as they desired detailed instructions. This suggestion was regularly rejected as it was the experience that with an increase of directives the laymen were faced with increased difficulties. Only in 1943, when submarine-warfare extended, another edition, enlarged and revised by Dr. POHLE was necessary, since due to the appointment of medical orderlies with special training for submarines (U.S.) a better medical instruction was advisable,





In the first years of the war laymen achieved successful treatment in quite a number of cases, as for instance:

Setting and splinting a fracture of the radial bone which was done by 1st Lt. (engineer) GABLER who was the chief engineer of U 564 (Lt. Comdr. SUHREN). Opening an abscess of a tooth fitted with a crown by means of slender drills (U 109, Commander HESSLER). Further, amputation of a foot which was smashed by an explosion, by means of a machine saw (U 156, Commander HARTENSTEIN); a few days later, at Martinique, this man was committed to the care of a French Military Hospital where, after a second corrective amputation, he soon recovered.

Anesthesia was achieved in most cases by subcutaneous injection of 0.02 cc. morphine solution and additional oral administration of alcohol. The morphine was kept under lock by the commanding officers of the submarines.

As long as the submarine operations were confined to the waters around Great Britain, thus being carried out near the bases, this system of medical attention was sufficient.

Medical officers were not allowed to take part in cruises, since in the first weeks of the war 2 flotilla surgeons who had gone aboard without orders were killed in action. This order was cancelled only in the winter of 1940 to 1941, when cruises to remote parts of the ocean lasting more than 10 weeks were made. Up to then, most commanding officers of submarines denied the necessity of attaching medical officers to the boats, as situations requiring immediate medical intervention rarely occurred. At that time, air raids on submarines, which later were the reason why so many casualties occurred, were of minor importance and the commanding officers were proud of their personal capacity in the field of medicine. Due to their important position aboard, naval officers were frequently prone to believe that they were qualified for everything. This applied especially to a certain type of "old sailor", who, himself being thoroughly healthy and showing no consideration for himself and his subordinates, was convinced that in warfare medical service was of minor importance. Later, there was an increased number of younger officers who on account of their training in the Hitler Youth and on the National Political Academy, were liable to exaggerated selfconfidence.

In the beginning, as long as the cruises were confined to the middle and southern Atlantic, no remarkable loss of surgeons ensued. All future flotilla surgeons and those medical officers who did research work at the Institute at Carnac were eligible for taking part on cruises, as both groups had to gather personal experience. Moreover, for psychological reasons, medical officers with front-line experience were more respected by the men than those who had no such experience.





In 1942, a naval surgeon was attached to every supply-boat and efforts were made to appoint a medical officer for each operating submarine unit consisting of 6 to 10 boats (the so-called U-boat-pack). These medical officers were equipped with a set of surgical instruments for submarines (set # 5), which was generally agreed to as well selected. In addition, a generous amount of medicines and material for dressings, splints and hammocks for carrying the sick was provided. While in the beginning of the war the selection of drugs was left to the surgeons of the boats, later, according to practical experience, a "standard set of medical equipment" was established and continually improved, being different for submarines having a naval surgeon or no naval surgeon attached, or those having aboard a non-commissioned officer with special training in submarine medicine. The medical equipment of supply-submarines differed from that of a vessel having a naval surgeon attached only by a more generous supply of dressing material, since it was experienced that this was the material which the boats needed mostly. Personal wishes of the medical officers of the boats exceeding the provided equipment were considered and specialists, as f.i. surgeons, ophthalmologists or otologists, were supplied with instruments for use in their special field.

As mentioned above, the development of the medical services of the submarines reflected the history of submarine warfare as a whole. Thus, decrease of success and increased casualties were followed by increasing importance of the medical officers and even naval officers previously strongly opposed to the assignment of medical officers to the boats, now recommended attaching a medical officer to every submarine. If this request had been complied with, an abundant number of naval surgeons would have been required. Medical officers being scarce, this suggestion was not accepted, except for a certain space of time in 1943 when a medical officer was attached to alternate boats. Then many naval surgeons were killed in action when the D/F-equipment was first employed by the English and the Americans. Regarding the activities of the medical officers aboard submarines, it was found by experience that medical aid aboard was limited. Even well trained specialists had difficulties in managing the wounded men in their very field which was especially the case aboard the so-called anti-aircraft submarines which operated in the Bay of Biscay and were supposed to fight aeroplanes. There, frequently a great number of battle injuries was subject to treatment as each in- and outgoing vessel was liable to casualties. Frequently, however, medical attention by a well trained layman was sufficient.

At the end of the year 1943 in the Bay of Biscay an officer commanding a submarine (Lt. Comdr. R.) was wounded by a shell splinter in his neck, the brachial plexus being severed. While at sea, the radio operator applied a simple dressing. When, after return, in the Naval Hospital the splinter was removed by a surgical specialist, it turned out that it was situated immediately upon the large blood vessels of the neck and it is likely that by an inadroite extraction they might have been injured. Hence, the surgeon was right when expressing his satisfaction that no medical officer was aboard the boat of Lt. Comdr. R.





As many submarines were lost, the number of naval surgeons was visibly diminished and at the turn of the year 1943 to 1944 the assignment of medical officers to submarines had to be restricted. From now on, in general, medical officers were only attached to the long-range submarines, that means chiefly to the boats bound for Japan. As in the meantime, the radio personnel was fully engaged in the operation of the D/F equipment thus being unable to do medical duties, a critical situation as to the personnel to be charged with medical duties ensued, which was met with by utilizing other experiences. Previously in northern Norway mates with a special medical training were assigned by the Naval Command for the medical attention of remote batteries and bases as "assistant medical officials". Since, in general, this measure proved a success, medical personnel (petty officers and first class petty officers of the submarine services) underwent a special medical instruction (medical personnel (U.S.)) enabling them to take over the duties of the medical officers aboard submarines. Eventually this was the case on every boat. From 1944 on until the end of the war, this measure was a success, as the Navy still disposed of a staff of well trained petty officers which hitherto was not diminished to a noteworthy degree by selecting men for commission as officers or by casualties. Consequently the medical orderlies who now were posted to the submarines for special instruction were selected men such as could not be seen any more in other naval ratings at that period of the war. Interest and eagerness of these soldiers were conspicuous and no true mistake concerning treatment occurred although a great number of medical orderlies was attached to the boats. Furthermore, since in operational areas boats with medical officers aboard were present, it was possible to call for a medical officer in urgent cases. It cannot be omitted that many commanding officers of submarines declared that their medical orderly (U.S.) was their best petty officer as far as character was concerned.

From 1943 on, under the command of naval surgeons of the submarines the petty officers eligible to special training for duties on submarines were placed in two, later in five groups of 20 to 25 men each and attached to a Naval Hospital with a great turnover of patients. Since all this medical personnel had passed special courses of instruction at the Naval Medical School they possessed a far better basic knowledge for receiving further instruction, than was the case with the radio personnel. Subsequently their education was finished by training them as surgical orderlies. Further they were made acquainted with cases frequently occurring in practice and lessons on medical matters were held for them. After 2 months these petty officers were transferred to a submarine training unit for instructing them in general submarine duties, the structure of the boats and the behavior on these. In addition for a short period similar courses were held for elder privates of the medical corps liable to be attached as medical orderlies to supply-vessels.

In the main the medical attention of the submariners was a matter of the naval surgeons in charge of the medical services of the flotillas who had to decide whether men were still fit for submarine duties or not. Examination by specialists at





Naval Hospitals was of great help for them. The flotilla surgeons themselves examined the crews of every returning or departing submarine, while its commanding officers or its first watch-officers were present. Thus it was feasible to cooperate in selecting sailors in need of recreation for sending them on an extended furlough, as the officers commanding the boats had no interest in men who were exhausted and unfit for duty, because at sea these were a burden to the crew or even dangerous to the boat.

In consequence of the experience of the Japanese reporting the frequent occurrence of pulmonary tuberculosis on all their submarines, attention was drawn to that problem although hitherto no such experiences had been made in the German Navy. Therefore, disregarding the X-ray findings during the examination concerned with fitness for submarine duties, as a rule X-rays of the chest of every member of the crews were made before the first departure for a cruise and the body-weight was checked after every return. Soldiers suspected of tuberculosis of the lungs were segregated and the entire crew screened with X-rays which was repeated at least once yearly. This control was very strict and only a few cases of acute tuberculosis were discovered.

The examination immediately before leaving the harbor was mainly concerned with vermin and venereal disease. After the transfer of the flotillas to France especially the latter became a serious problem, as it was rather difficult to replace a man who was contaminated with V.D. shortly before putting to sea. Therefore certain commanding officers of submarines retained the men aboard the boats for the last 4 days before leaving the harbor. This was only successful with regard to gonorrhea which has a short period of incubation but the number of cases breaking out at sea increased despite these measures. Although no cases of spread of the disease whilst at sea are known, laymen had to be instructed how to treat the gonorrhea. In consequence a memorandum concerned with diagnosis and treatment of V.D. was issued and a relevant chapter was inserted when the "Aerztliche Ratgeber" (Medical Guide) was re-edited. The sulfonamides necessary for treatment, like the morphine, were kept under lock by the commanding officer himself. If there was reason to suspect lues, transfer of the patient to a returning submarine or to a boat with a medical officer aboard was advisable.

As the occurrence of V.D. increased the commander in chief of the submarines himself issued orders to punish men infected with V.D. by detention for at least six weeks on grounds of military insubordination. This order gave reason to many discussions and had not to be applied if the defendants were able to prove that

- a. they underwent prophylactic treatment (being registered in the prophylaxis roll);
- b. a condom was used.

If this was the case the defendants had to be acquitted by the military court. If necessary an expert opinion on the





possibility of contamination in spite of prophylaxis and the use of a condom had to be given by a V.D. specialist. This order was successful for a short period in so far as the number of men reporting sick with V.D. but most likely not their eventual number was diminished. It is known that men sick with V.D. were deliberately not reported for trial because they were excellently qualified soldiers and frequently commanding officers of boats and the naval surgeon in charge of the medical services of the flotilla agreed with each other on that subject (the punishment was a matter of the flotilla-command). Moreover from fear of being punished especially in occupied countries many men believing themselves suffering from V.D. requested medical treatment from civilian physicians. Subsequently it is certain that many soldiers escaped detection despite the regular control, which, in the Navy, was strictly carried out and thus this order failed to achieve its aim and was cancelled later.

For the special training of the medical officers recently posted to the submarines from the winter 1940 to 1941 on courses lasting one, later two weeks were held at Kiel. There the young future submarine surgeons were introduced in the particular problems of the submarine medicine and familiarized with the medical duties aboard submarines and the medical experiences attained in warfare at sea.

Later, when the Naval Institute of Research in Submarine-Medicine at Carnac was established, part of the submarine surgeons was sent there before leaving for a cruise in order to be instructed concerning the problems awaiting them on the boats. There they were charged with special scientific tasks which they were expected to investigate during the cruises but most often the problems assigned did not agree with the requirements of practice. Only later when on long-distance cruises the younger members of the institute had produced detailed scientific results was the cooperation of the medical officers in charge of the boats more successful and the work of the institute better adapted to front-line conditions.

The particular feature of medical attention aboard submarines was the appointment of untrained personnel in large numbers for doing medical duties but the methods were always modified at the right time. When the radio-personnel were no longer able to do what was expected from them in the field of medical attention, naval surgeons were attached to the boats. When, owing to the exceedingly high casualties of medical officers this could not be continued, these were replaced by medical orderlies with special training. Considering the consequences this was the necessary measure even if it had to be admitted that in the course of time the high moral and professional standard of that personnel would have deteriorated. At any time, however, the control by the flotilla-surgeon would have been strict enough for restricting failures to a minimum. Anyway it was wrong to attach medical officers to the boats in the same scale as was done in 1943 to 1944 since there was no sensible ratio between the casualties of medical officers and their use for the crew.



Even if in submarine warfare it is common that specially trained personnel with a long training are lost, the attachment of medical officers was justified only for long-range boats which were away from their bases for months and for supply-vessels. For these duties all future flotilla-surgeons were available. Medical attention by both, medical officers and orderlies, was only achieved towards the end of the war.





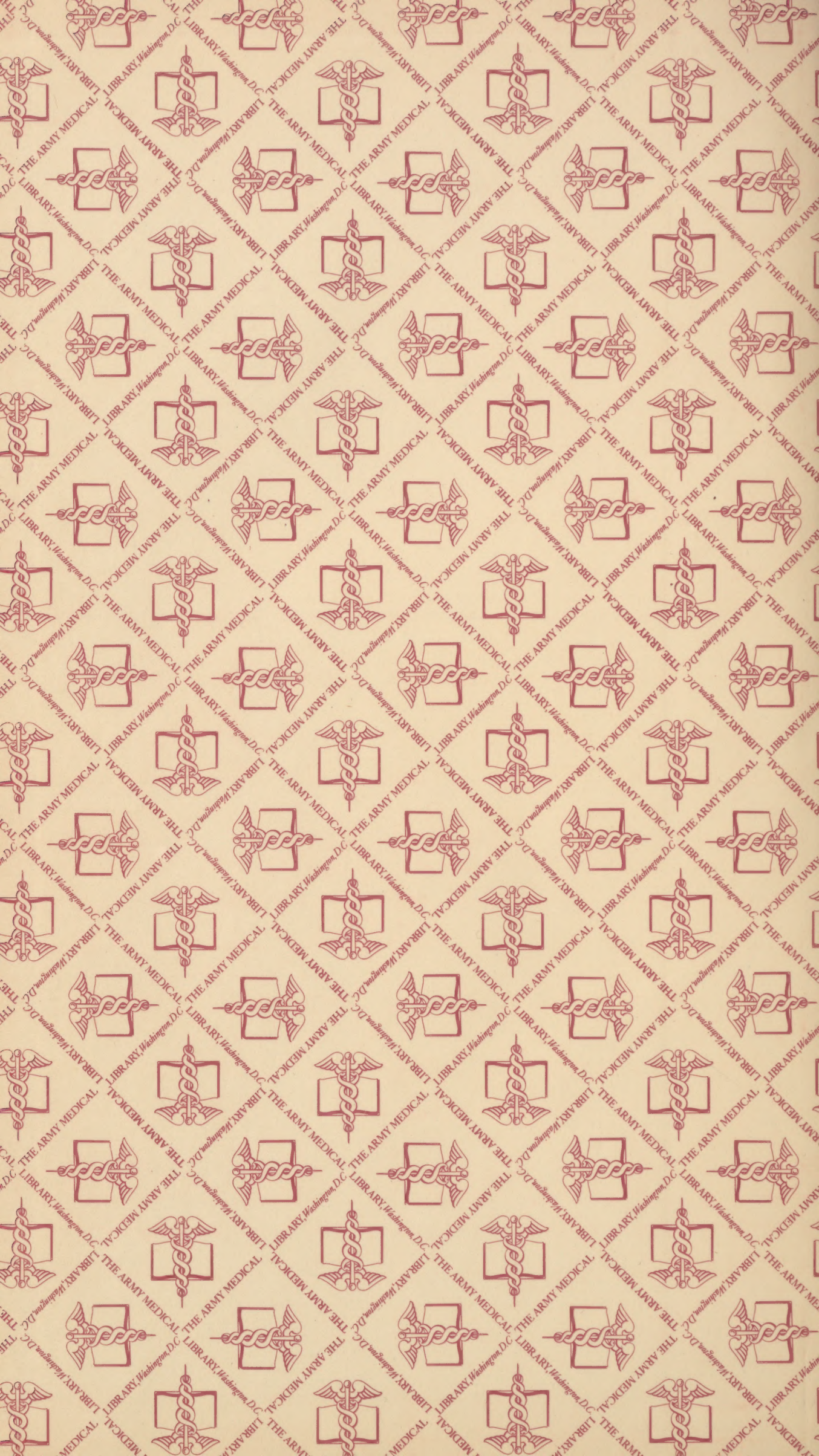




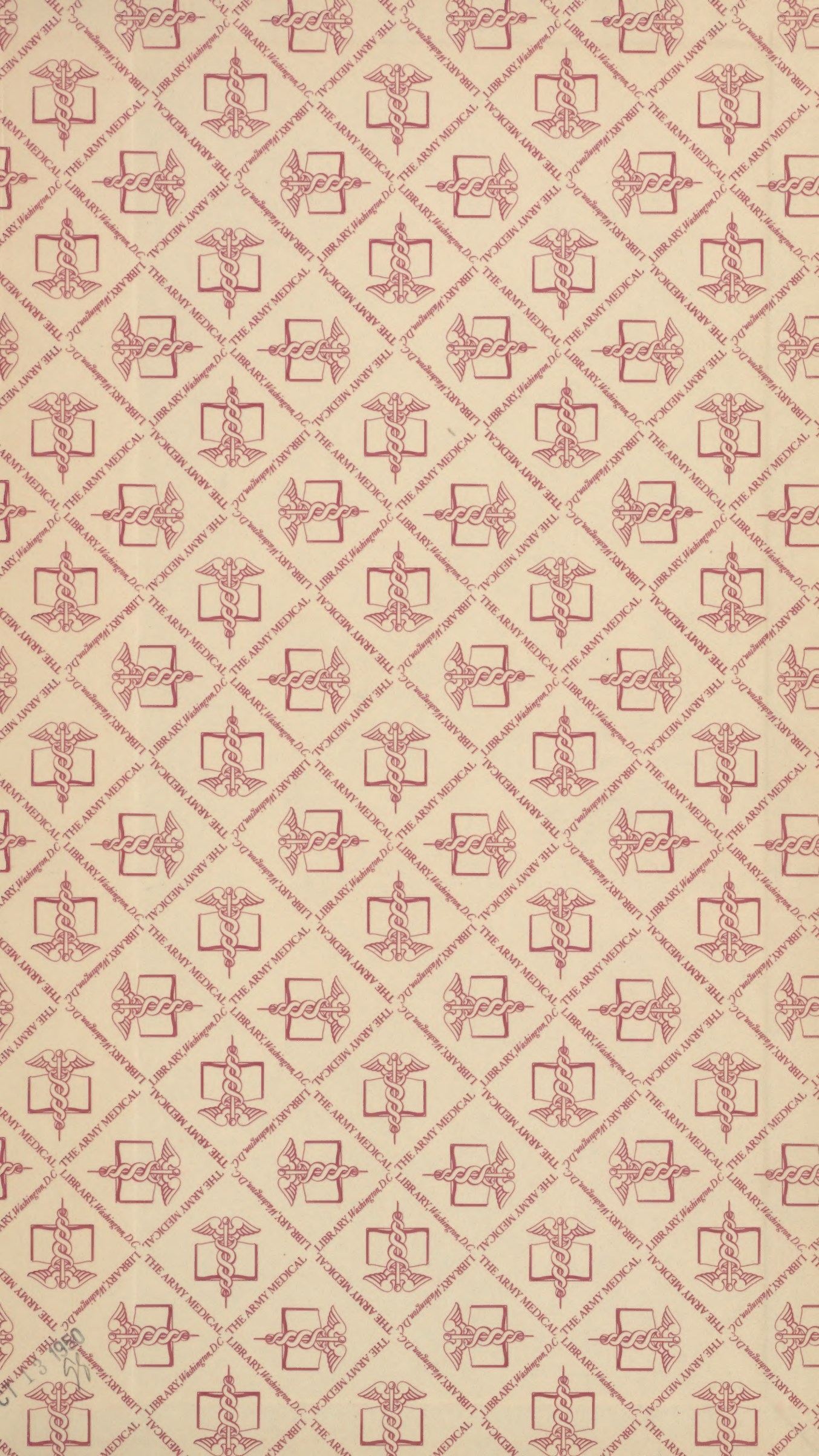














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